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## Original Articles.

CASES OF RUPTURE OF THE SPINAL LIGAMENTS.<sup>1</sup>BY CHARLES F. PAINTER, M.D., AND ROBERT B. OSGOOD, M.D.,  
BOSTON.

WE have to report 4 cases of injury to the spine in which there was kyphosis without tuberculosis or other disease of the vertebrae; in which there were symptoms of pressure upon the cord, which pressure symptoms were relieved and the patients entirely recovered, functionally, in the course of a few months after treatment with plaster or leather jackets was commenced.

In addition to 2 cases reported by Dr. Myers before this Association 2 years ago, we have found 15 others which, with 2 or 3 exceptions, seem to us to be uncomplicated ruptures of the spinal ligaments. In the long bones it is well known that oftentimes fractures and luxations will occur before the ligaments rupture. This is, we believe, not so generally true in the case of the bones of the vertebral column and its ligaments.

In the cadaver Wagner and Stolper have shown that with dorsal and cervical muscles dissected off, the spine can be flexed forward so that the chin rests on the breast without any rupture of the ligaments. If in addition to this forward flexion there be added some side flexion, the spinal ligaments will give way. It is fruitless, however, to argue from this what would happen to a living being whose muscles were in place and whose trunk was subjected to an unexpected application of force. In other words, we do not place any reliance upon experimental studies upon the cadaver.

Courtney has very carefully studied this question, and has embodied his conclusions, based upon the study of 2 cases, in an article entitled "Distortions of the Spine, with Report of Two Cases, etc."

The following is the report of cases above referred to. These represent all the cases in the literature classified by the authors as "injuries to the spine accompanied by ruptured ligaments." This, in their minds, as well as ours, is not intended to include either luxations or fractures, though, as you will see, there are two or three exceptions.

**CASE I.** Female, 32 years of age. Has never been a very strong person; had nervous prostration three or four years ago, but has always worked and for some years has earned her own livelihood. In the spring of 1900 she had measles, and while delirious fell from a third-story window and sustained a compound fracture of the right leg just above the ankle. At that time there was an injury to the back which seemed insignificant compared with the injury to the leg. The patient was unconscious for a day or so, and was paralyzed from the waist down for several days, but gradually got back the power. She had a great deal of

<sup>1</sup> Read before the Orthopedic Association at Niagara, in June, 1901.

pain in her back during her stay in the hospital, while the fracture was uniting. After her discharge from the hospital the patient got about a little with crutches, but there was a great weakness in the back and legs and much pain. She also noticed a projection in the back which when first detected was soft, but subsequently became hard. I first saw her in August, 1900, when she presented the following symptoms and physical signs:

Physical examination: Heart and lungs normal. At the level of eighth dorsal vertebra is a well-marked kyphosis with muscular spasm. The right leg between the knee and the ankle is three inches shorter than the left, the knee joint is stiff and motion of the spine is limited by muscular spasm, relaxing on firm pressure. Much relieved by plaster jacket. Discharged relieved, Sept. 8, 1900.

On lying down the kyphosis entirely disappeared, as it did also on standing up with trunk hyperextended. It was only when standing unsupported or sitting in chair unsupported that the hump was evident. A plaster jacket gave immediate relief to the weakness and pain in the back, and in the course of three or four weeks she was able to get about of her own accord and care for herself. There is still a slight, though very much less of a kyphosis.

This case illustrates an uncomplicated rupture of the ligaments. The condition was unrecognized for several weeks. During this time she was confined to bed. The deformity was reducible at will without any evidence of a luxation. Pressure symptoms were produced by any move that brought out the deformity and were relieved by reduction of the deformity. Case was entirely relieved by use of spinal support.

**CASE II.** Traumatic kyphosis. Male, 35 years of age; married. Lost an arm and received other injuries on Feb. 18, 1900. While in hospital had severe pain in back for five weeks. After getting home his right foot troubled him by being numb and going to sleep. At night both legs twitch, and he has sensations of burning and soreness in the leg. Better when lying down, but has been able to walk as much as half a mile.

In this, as in the previous case, the kyphosis was much less in the hyperextended position, and a jacket was put on in this position. This at once relieved the numbness and weakness in the legs. This was changed to a leather jacket, and for a time it was possible to bring on his numbness by allowing him to flex the trunk. Under the use of the jacket this has entirely disappeared, and he had entirely omitted the support a year after it was applied, and was at work railroading again.

**CASE III.** Male, 39 years. This patient, while standing, was struck in the back of neck and shoulders by the under part of a slowly-moving freight elevator. He was knocked down, sustaining a severe shock and concussion, but his extremities were not paralyzed. In a few weeks he was out and about. He had been a very tall man.

and quite erect, but after the accident he was considerably shorter, because he could not stand erect. His greatest difficulty in doing his work was that he had difficulty with respiration, not being able to go up a few steps without great dyspnea. This, he noticed, was relieved by anything that would hold his head and shoulders back. He liked to get himself in a position where the upper portion of the trunk was held in the maximum position of extension. This was finally successfully accomplished by the use of a leather jacket.

The point illustrated by this case is that the patient sustained an injury to the spine, causing a forcible bending of the column forward sufficient to cause him to assume a stooped position several months after the injury had been sustained. This position was partially correctible. The curve was a long sweeping one; no sharp knuckle. Patient sought relief from sense of respiratory difficulty on even slight exertion; this was accomplished by application of a jacket in an hyperextended position.

CASE IV. Female, age 17; delicate. Strain in lifting a barrel. The consequences were not felt at once. She was well for 6 or 7 months; then felt violent pain in lifting, referred to the last lumbar vertebra. Pain always recurred on lifting, so that she gave up occupation and became a seamstress, but pain still continued. Gradually a crooked position began to be noticed. At the end of a year the examination revealed the fact that pressure on either side of the spinous processes was painful, and she was practically confined to bed. Under general treatment she improved. Deformity still persisted, much relieved by tight corset.

This case is instructive as suggesting a partial ligamentous rupture made complete by a subsequent exertion; the production of a bone deformity which was relieved though not obliterated by a tight corset. In this case it would seem that the gradual development of the deformity without any bone disease being present was most suggestive of a ligamentous rupture.

CASE V. The patient, a male 27 years old, was a miner by occupation. He was seated on a board over a pit, and was struck in the region of the scapulæ by a rock weighing several hundred pounds. The body was bent forcibly forward. He fell a few feet into the pit below. Examination showed an anteroposterior curve of the low dorsal and upper lumbar regions, the spinous processes bulging upward. Complete paralysis of lower extremities. By pressure of the hands against prominence some reduction of the deformity was accomplished; still enough curving backward to look like a well-marked case of Pott's disease. Paralysis of motion, sensation and the sphincters; temperature 103. By fixation in bed the patient underwent gradual recovery. He was unable to walk for 18 months; then a spinal support like those applied in cases of Pott's disease was used, and the patient could walk at once without canes. At the end of the 18 months he

worked without a support in the mine. The deformity was most marked from the eleventh dorsal to the third lumbar and projected  $2\frac{1}{2}$  inches. The deviation of the curve was  $2\frac{1}{2}$  inches. The diagnosis made partial dislocation backwards of the last two dorsal and upper two lumbar vertebrae.

In this case there is undoubted evidence of partial dislocation, and it is cited here only to show that considerable deformity may persist without causing pressure symptoms in a case of dislocation, where it is difficult to see how there can fail to be a considerable narrowing of the vertebral canal. It cannot be proven in this case that the failure to completely reduce deformity may not have been due to a fracture.

CASE VI. The patient fell 40 feet and was unconscious for 3 days. Slight loss of power and sensation in left leg. No effect on the sphincters. A deep depression could be felt between the first, second and third lumbar vertebrae, due to a rupture of the ligaments. There was a great deal of pain; the patient was confined to bed. A plaster-of-paris splint was applied to the back, soon after which he got up out of bed, walked well and went on to complete recovery.

In this case there is no departure of the vertebrae from their normal relations—the rupture of the ligaments allowed the fingers between the spinal processes. Immediate restoration of function followed fixation of the trunk. The temporary lack of power and loss of sensation may of course have been due to a temporary injury caused by a dislocation, but may equally well have been due to the flexion force causing rupture of the ligaments, or to hemorrhage.

CASE VII. Man, 34 years old. He was jammed, with a hyperflexed trunk, between a low archway and the seat of a cart. Immediately there was loss of all motion in the lower extremities, but no loss of sensation. A large swelling over the second lumbar vertebra at the time of accident. As this subsided the spinous process of the second lumbar vertebra was seen to be especially prominent. The pain gradually subsided and sensation remained good, but no motion in the legs. In 2 weeks the thighs became flabby and atrophied. There was no pain on pressure over the prominent vertebrae. Under galvanism to the muscles of the lower extremities, strong contractions took place and there was a gradual return of power. After 19 weeks he was up and resumed his occupation of driving a van.

Another case where rupture of ligaments and partial dislocation concurred, showing that injury to the cord resulted from the vertebrae being forced against it at the time of the injury, and also that the persistence of a partial dislocation is not necessarily competent to keep up pressure symptoms. These symptoms may be due to a hemorrhage into or about the cord, as has been demonstrated in other cases.

CASE VIII. Man, 42 years old, had a fall of 25 feet, striking on his feet and then bending very far forward. Great weakness and pain in

the back, but examination was negative. Could not hold himself erect without support. A month after accident there was a slight kyphos over the twelfth dorsal and first and second lumbar. A "spinal assistant" applied, and cure resulted.

Dr. Myers' case seems to us to be one of pure ligamentous rupture, proven by the fact that the deformity did not exist at the time of the accident, but did some months afterwards, having been slowly increasing until checked by Dr. Myers' treatment. Assumption of a fracture which has not united is not necessary to account for this.

**CASE IX.** A man, 20 years old, slipped while carrying weight and was thrown backward. He felt something give way in the lumbar region, and sensation of pins and needles in the feet was noticed for a short time. The back gave way 5 times in exactly the same manner. Examination showed slight kyphos of the twelfth dorsal and first lumbar. The knee jerks were exaggerated. There was some paresthesia and twitching of the legs. He was put to bed, a plaster-of-paris jacket applied, and he recovered.

The author (Dr. Myers) seems to believe that in most of these cases there is an unrecognized fracture and for the time there is nonunion. Here, in this second case, there was slight kyphos noticed. A pure uncomplicated rupture of the ligaments would account for this case. It was probably a rupture of the ligaments within the canal which caused the pressure symptoms because of a slight flexion in the canal. The prominence of the two vertebræ could be accounted for in that way.

**CASE X.** Man, 32 years old, a brick layer. He had a fall of 30 feet. Examination made in bed. Angular projection of the last dorsal and first lumbar, while there was a depression of these vertebræ, one inch in depth. The transverse processes were prominent; the pain was chiefly from the other bruises and not at the seat of spinal lesion. There was no paralysis; the chief discomfort was that he was unable to stand erect. He assumed the following position when on his feet: he stood beside a low table, leaned forward with his chest on the table; walked by grasping the front of both thighs with the knees bent. Six months after the accident he resumed his former occupation; walked some distance to his work, although the back was still flexible at the seat of injury and the kyphos still prominent. Feeling of weakness in the back relieved by lying down.

This case is of interest because of the extreme grade of bony deformity without pressure symptoms and the persistence of the fissure at the seat of the spinal injury, which would indicate a failure to unite on the part of the vertebræ if it were a fracture, but the same would be caused by the stretching out of a ligamentous rupture which had healed. It would seem as though a fracture could hardly have failed to have given rise to some signs of callus.

**CASE XI.** A man, 29 years old. About a half a ton was sustained by the arms, shoulders and

back of this man for half a minute before help came. He felt something give way in the back and he became insensible; recovered his senses, was helped home for a mile, and then became unconscious. He was paralyzed from the dorso-lumbar region downwards. He remained thus for two weeks; gradually sensation returned, and although weak in the back he started on a horse-back ride, but on his return he became paraplegic and then entered the hospital.

Well-nourished man, paralyzed in the lower half of the body; no displacement of the spine; no control over bladder or rectum. Electricity, tonics, etc., without relief, tried for six weeks. Application of Sayer plaster-of-paris jacket. The symptoms improved and he left the hospital. After eight weeks he was so much better that he removed the jacket and applied an improvised support himself. The symptoms returned. At this time he was given by mistake an overdose of morphine and died, and at autopsy it was found that the third lumbar vertebræ was partially dislocated over the fourth.

This illustrates the fact that deformity is not necessary for the existence of a dislocation, though it does not prove that dislocation existed at the time of the original injury. Rupture of the ligaments may have allowed the vertebræ to slip past each other at some time subsequent to the first injury.

**CASE XII.** A blacksmith, aged 23, was on the top of a pleasure van when the driver attempted to go beneath a low archway. The patient stooped and was drawn through the arch with the spine forcibly flexed. Dyspnea; left leg was paralyzed; hyperesthesia. Opposite the spines of the tenth, eleventh and twelfth dorsal vertebræ, a prominence which terminated below in a slight depression. In five days he was much better, and in one month he was discharged convalescent.

This case shows the manner, more or less usual, in which this class of injuries is produced, namely, the force being brought downwards upon the partially flexed spine, the two extremities of the column being crowded together.

**CASE XIII.** M. Lasalle reports a case of the rupture of the posterior ligament of the spine in the cervical region and intervertebral muscular fibres from simple muscular action in a case of acute mania. Death which followed was due to hemorrhage into the cord.

In this case there was no fracture or dislocation. No outside influences were brought to bear, and yet rupture of ligaments and hemorrhage, sufficient to cause death, ensued.

**CASE XIV.** Male, 20 years old, strong, athletic and muscular. Roof of a flat boat fell on patient, forcing his chest down between his legs upon the floor. The immediate symptoms were violent concussion, insensibility, intermitted respiration, bleeding from the eyes and ears. Examination showed the spine apparently entire and uninjured except at articulation between last dorsal and first lumbar. Integuments were here contused; articulation completely torn assunder and



a rupture of the ligaments. The spinous processes were broken off. Articulating surfaces were two inches apart. The patient was turned on the side and there was an angular projection at this point of  $100^\circ$ , but to the surprise of the attending physicians he gradually improved under simple rest treatment and being placed flat on his back on a hard surface. In two weeks he sat up; in four weeks he returned on foot to the flat boat, a distance of half a mile. Thirty-two days after the injury he was apparently well. There was a slight deformity at the seat of the injury. Up to this time he had done no lifting. Several weeks later, after some slight exertions, there was reported considerable backward curvature at the seat of the lesion. Otherwise apparently perfectly well.

This is the most remarkable of the series and was observed carefully by two or three competent physicians. It cannot be proven that there was no dislocation, but there certainly was a rupture, and the fracture was confined to the spinous processes, so far as known, and for that reason it seemed fair to report it in this series.

CASE XV. Male, 73, fell three feet from carriage striking on head. Head bent forward. On sitting up there was almost a right angle flexion in the neck. Two hard bodies could be felt. Slight lateral movement between the atlas and occiput. Paralysis from third rib down; feeling gone also. Intellect intact; respiration imperfect. Lived 18 hours.

*Post mortem: vertebral column.*—No fracture; blood extravasation. Posterior ligaments so lacerated as to allow finger to enter the canal. In front the transverse ligaments were torn at the level of fourth and fifth cervical vertebræ. The body of the fourth was entirely bare. Spinal dura intact. Interlaminar ligaments torn. The muscles were all that held the fourth and fifth cervical vertebræ together. Ligamentum flavum completely torn off. Dura colored with blood; no exudate. Cord removed. Hyperemic; medulla not torn, and in centre blood extravasation three inches long on posterior surface, extending through cortex and destroying nerves.

No microscopical examination. Intervertebral cartilages torn in shreds.

This shows conclusively, we think, the possibility of an uncomplicated rupture of the ligaments, and offers a possible explanation of the pressure symptoms in many of these cases. The hemorrhage here was sufficient to cause death very soon, but had it been of less extent or in some other portion of the cord, it is reasonable to suppose it might not have terminated so disastrously. It is furthermore not irrational to assume that serious effusions following a forcible flexion of the column might cause temporary pressure, and this become absorbed and symptoms disappear.

CASE XVI. An elderly shoemaker was sitting at his table using a drawshave on a piece of wood, one end of which rested against his chest; this slipped causing him to fall suddenly forward. As a result, there was a slight deformity in the mid-

dorsal region; no paralysis; great pain and weakness in the back. He was treated by being placed on his back in bed with a pillow so placed as to arch his back up directly beneath the deformity. By keeping in this position for seven weeks he was able to get up and get about at his work again.

CASE XVII. Wagner and Stolper report rupture of ligaments of odontoid, and lateral ligaments between the atlas and axis; luxation with compression of cord, but no fracture or crushing of the cord. Recovery. Lived a year and died of cerebral tumor.

This case illustrates again the possibility of compression of the cord after rupture with luxation, and is cited simply because an autopsy was performed which showed the rupture of the ligaments, the luxation having been reduced at the time of the accident. This is not an uncommon result, of course, and plenty of cases of the sort could be cited from the literature of spinal luxations, but not many with autopsy so long after the injury where the rupture of the ligaments were carefully noted.

CASE XVIII. Male, aged 32, telephone lineman. In January, 1901, fell from telephone pole as a result of contact with "live wire," striking on frozen ground upon the back of his neck; was stunned, and taken to the hospital, where he was suspected to have a fracture of the upper dorsal spine, and was so treated. In three weeks he was put in a plaster jacket and discharged. He wore the jacket for some months and then had a back brace made. He complained of pain referred to the seat of the injury; numbness and tingling in the legs and inability to stand erect. He was a tall, well-built man. There was no deformity in the back. The line of the spinous processes was regular, no sign of luxation. Long rounded kyphos in upper dorsal region. This could be partially corrected by extension.

A jacket was applied standing, correcting as much as he would bear. This entirely relieved the pain and numbness, but as it did not wholly correct the kyphos a second attempt was made two weeks later, this time with the patient on his back upon the frame. This caused so much pain that it had to be cut off within a few hours, and we went back to the erect position. Six weeks later we were able to fit him with a leather jacket which is holding him entirely erect and relieves his symptoms, though when it is removed he does not seem to be able to hold himself wholly erect as yet. This will probably come, however, if the jackets are worn long enough.

An analysis of these cases, from the pathological point of view where this has been possible and from the clinical and anatomical point of view in other cases, would seem to justify the following conclusions:

- (1) Spinal ligaments, during life, may be ruptured without fracture or dislocation.
- (2) Nerve pressure symptoms may occur from a simple flexion of the vertebral column,

(3) Recovery in these cases requires prolonged rest in a position which favors the repair of ligaments, and that the effects of treatment speak more for the ligamentous rupture than for luxation or fracture.

(4) The force which commonly produced the injuries (when stated) was one which, *a priori*, would be most likely to produce ligamentous rupture.

The cases which may prove the first point are: Cases I, II, IV, VI, VIII, IX, XII, XIII, XIV, XV and XVII—in all, 11 cases. In one of these we have the photograph of a very careful dissection made post mortem. In another, a rupture of the ligament was shown post mortem, and this occurred from muscular exertion wholly. Further discussion is not necessary in regard to this point, as such facts conclusively show that it is possible to have such an injury.

In support of the second point we can only say that in the four cases of our own here reported, the production of deformity (flexion of the column) would bring on pressure symptoms which could be immediately relieved by hyperextension, and there was no apparent lateral deviation of the spinous processes and nothing to suggest that there was any forward displacement of the individual vertebræ at the seat of the kyphos. There was no suggestion of thickening from callus in any of these cases. Of course it must be admitted that every luxation must be accompanied by a rupture of the ligaments, and that it is possible for forward flexion in these cases to have caused a slipping out of the vertebræ which would then exert the necessary pressure for the production of numbness and weakness. One would hardly expect this, however, without some other external evidence.

In regard to the third point it is to be noted that in the case where a period of some months has been devoted to fixation of the spine, fresh ruptures are likely to occur bringing back the old symptoms. Were these cases of ununited fracture of the vertebræ they would naturally be fractures of the spinous processes or the laminae, and usually some evidences of bony consolidation ought to be found. That did not occur, or at least was not noted, in any of these cases. Furthermore, in the four cases which we report from our own observation, the patients had been in more favorable conditions for union of a bony rupture before the spinal lesion was noted than they were allowed to be in afterwards.

And lastly, in regard to the manner of production of the injuries, there seems to be a rather striking uniformity in the way these patients sustained their ruptures: Cases III, IV, V, VII, VIII, IX, XI, XII, XIV, XV and XVI are the only ones, except Case XIII, in which the nature of the injury is given. In Case XIII muscular action alone was responsible for the rupture. In all of the others the force applied was invariably either from above downward upon a flexed vertebral column, or from below upwards. And this is precisely the sort of injury one would expect

to tear ligaments. If it is possible, as is shown by Case XIII, to produce within the body, through its own exertions, sufficient force to rupture the spinal ligaments without fracture or luxation, it would certainly seem that the proper combination of external and internal conditions would be forthcoming a sufficient number of times to make this lesion one which is not so very uncommon. Particularly would this seem to be true when one recalls the not infrequent occurrence of ruptures of large tendons, for example, the quadriceps extensor, the patellar, etc., without any fracture of the neighboring bones or even luxation of them.

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A REWARD of 3 cents per head has been offered for every rat brought to an officer of the Sanitary Board of Hongkong, China, and by this means more than 50,000 rats have been collected and destroyed during the first half of the current year. — *American Medicine.*



THE TREATMENT OF PLACENTA PREVIA.<sup>1</sup>

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THERE are few more interesting topics of discussion for the obstetrician than the treatment of placenta previa, and although many papers have been written on the subject in recent years, yet there still exists a wide difference of opinion and of practice with respect to the methods to be pursued in the treatment of the condition.

Recently several papers have appeared advocating Cæsarean section as the best method of treatment for placenta previa, but the arguments in its favor are far from convincing that the operation is a suitable one, or that its results will be attended by a lower rate of mortality than is obtained under other methods. A very few cases of placenta previa have been reported in which Cæsarean section has been performed, but the results of these are not at all promising.

Certainly any procedure which can be shown to hold out promise of a material diminution in the maternal or even in the fetal mortality is worthy of serious consideration and trial, but under the present methods of conducting labor cases among the vast majority of people, the early diagnosis and treatment of placenta previa, by which I mean the recognition of the condition before labor or hemorrhage begins, is only rarely possible. For this reason most cases of placenta previa are first seen in more or less unfavorable conditions for good results by any method of treatment, without adding the additional shock of an abdominal operation.

In this connection the mortality results of placenta previa at present, under the methods of treatment which have been in general use are particularly valuable, owing to the fact that earlier statistics were gathered at a time when puerperal sepsis played an important part in the convalescence of all obstetric cases, and especially so in placenta previa and other operative conditions. At present, however, the question of death from septic infection may practically be eliminated from consideration in determining the mortality from placenta previa, as that now usually constitutes the least of the obstetrician's worries, and a small proportion of the aseptic precautions necessary for abdominal section renders the vaginal delivery free from all danger of infection.

By this I would not wish to be understood as making light of aseptic practice in obstetric work, but that as the advocates of abdominal section put forward the liability of puerperal sepsis in vaginal delivery in placenta previa as one of the leading arguments in support of the practice, I would say that the same precautions which we adopt in abdominal surgery, if used in obstetrics, would undoubtedly absolutely stamp out puerperal sepsis, and yet peritoneal infection not very infrequently

occurs in abdominal work in the most careful hands in spite of every precaution.

I have recently collected the cases of placenta previa at the Boston Lying-in Hospital and found altogether 75, of which 56 were treated in the hospital wards and 19 in the Out-Patient Department at patients' homes.

Among the 56 house cases there occurred 6 deaths—a mortality of 10.7%; all the fatal cases were complete placenta previa except one. Of the 19 out patients there were 2 deaths, 1 of the complete and 1 of the incomplete variety—a mortality of 10.5%. Taking the whole 75 cases together, there were 8 deaths—a mortality of 10.6%.

This mortality is somewhat higher than should occur under normal conditions with careful treatment in private practice, since a large proportion of these cases are sent into the hospital by outside physicians in Boston and vicinity, for delivery after severe hemorrhage has occurred. As under these circumstances the hospital receives and cares for many very unfavorable cases, some of which are in a desperate state before any treatment can be undertaken, it would be natural to expect that the mortality of the hospital cases would be above normal, and that any supposed advantage to be gained by hospital treatment and skilful operating, is more than counterbalanced by what amounts to early neglect. Upon prompt attention and treatment and the prevention of antepartum hemorrhage, a low maternal and fetal mortality largely depends.

For this reason the mortality of the Out-Patient Department, in which the women are seen and cared for usually after the onset of hemorrhage or labor and are treated without being subjected to the delay and danger incident to removal to the hospital, would seem to offer a fair basis for comparison with the house cases, inasmuch as the out patients are usually of the poorest class and often suffer from lack of the necessities of life. It is rather curious, however, to observe the slight difference of mortality which exists between the house and out-patient cases—only two-tenths of 1%.

There are some interesting points in connection with the 8 fatal cases which can only be brought out by reviewing them briefly:

CASE I. Eight months pregnant. At entrance weak, anemic and much exhausted, having had copious hemorrhages for 1 week; version. Very slight post-partum hemorrhage, easily controlled, but mother and child died within 2 hours.

CASE II. At 7 months. Poor condition at entrance. Two severe hemorrhages outside hospital. No post-partum hemorrhage; version. Baby stillborn. Mother collapsed and died within 2 hours.

CASE III. At 8 months. Moderate hemorrhage for 2 weeks, considerable 1 day, considerable during labor, no post-partum. Collapsed and died 12 hours after labor.

CASE IV. At 7½ months. Considerable hemorrhage for 4 days. Condition poor; marked pallor. Pulse 120. Primipara. Manual dilatation requiring only 9 minutes, version and extraction only 3 minutes, whole labor 9 minutes. No hemorrhage after delivery and placenta allowed to remain 1 hour. Died in 10

<sup>1</sup> Read before the Obstetrical Society of Boston, May 21, 1901.

hours of profound anemia. This was 1 of the 2 fatal cases in which the previa was incomplete.

CASE V. At 8 months. Severe hemorrhage for 7½ hours before entrance, beginning with labor. Was given whiskey, digitalis, and nitroglycerine, and vagina packed by physician outside. Condition at entrance poor; blanched, and patient fainted. Pulse 156. No post-partum hemorrhage. Uterus packed. Fibroid in anterior wall of uterus interfered with delivery and packing. Died 2½ hours after delivery.

CASE VI. At 9 months. Hemorrhage considerable for 1 day before delivery, and post-partum, requiring packing which controlled it. Patient did well for 3 days, then developed abdominal symptoms, vomiting, distention and a rapid pulse. Died suddenly on the 5th day. Autopsy showed a diphtheritic colitis with secondary infiltration of perinephritic tissue. This death was not traceable to the placenta previa or to the delivery, and might perhaps be excluded without inviting criticism, but I have included it as 1 of the 8 fatal cases.

CASE VII. At 5½ months. Considerable hemorrhage for 1 day. Out-patient case. Did not send for assistance till late. Condition poor. Pulse 129. Severe post-partum hemorrhage, packed, but did not control hemorrhage very well. Died several hours after delivery. Second case of incomplete previa.

CASE VIII. At 9 months. Hemorrhage began 5 days before labor, moderate but increasing in amount and was severe for 1 day. Pulse 148. Fainted before delivery. Packed, but there was no post-partum hemorrhage. Very weak, and died in 12 hours.

These fatal cases suffice to show the desperate condition in which many patients are received at the hospital. There were a number of others seemingly quite as bad but which survived under similar treatment. The state of indifference or neglect which many of these women allow themselves to fall into with respect to hemorrhage seems incredible. I suppose it is due to the fact that they become accustomed to seeing considerable loss of blood about a quarter of the time during most of their life, and an increase in the amount does not impress them as of serious importance until they begin to notice the weakening effect.

In only one of the fatal cases, the seventh, was there a severe post-partum hemorrhage which was difficult of control, the others having little or none. This illustrates a fact which I wish to emphasize strongly, namely, that while post-partum hemorrhage may be an active danger and one always to have in mind to be guarded against, it is not nearly as dangerous an element in placenta previa as continued antepartum hemorrhages, which so weaken the patient as to render any form of delivery dangerous.

Only one primipara died out of 16, and her death seems to have been directly due to the exhaustion from the antepartum hemorrhages. The dilatation and delivery were easy and rapid, as they were in all of the 7 primiparous cases in which version was performed. Eight primiparæ delivered themselves without difficulty, and the labors were comparatively short for primiparæ, averaging not over 10 hours, undoubtedly due to the softness of the os and the easy dilation characteristic of placenta previa.

Version, then, usually contra-indicated in a primipara because of natural difficulties, is easily performed in placenta previa.

In any of these 8 fatal cases which I have reported it does not seem as if the most enthusiastic advocate of Cæsarian section would care to do the operation under the conditions in which the patients were received. Moreover, 6 of the labors were premature, only 2 being at term, prematurity generally, I believe, being a contra-indication to abdominal delivery except when possibly in rare instances it might be done in behalf of the mother.

The operations at the Boston Lying-in Hospital were performed by as many as eight different members of the staff, so that the credit either of the good results or of the deaths cannot be attributed to the work of any one man. The only suggestion that I would offer in regard to the treatment of the hospital cases is that possibly some of the patients might have been gotten into better shape by delaying operation for a while, by packing the vagina tightly to control hemorrhage and to allow dilatation, while the patient is being stimulated and strengthened and brought into better condition.

With regard to the general maternal mortality from placenta previa, it was without doubt formerly high, probably between 20 and 30%, but these early percentages were obtained from cases collected at a time when puerperal sepsis was frequent, and was an important factor in the maternal mortality from childbirth, especially so after placenta previa and other obstetric conditions requiring operative interference. But nowadays, with the practical elimination of puerperal infection under aseptic precautions, and with marked improvement in operative technique, the maternal mortality has been greatly reduced, and under favorable conditions and good treatment it is probably below 5% in placenta previa.

That the mortality ever reached the 50% attributed to it by Tait I cannot substantiate by any record of cases I have been able to find. Simpson's figures which Tait mentions placed it at 29%. The earlier editions of Lusk, published nearly twenty years ago, place the maternal mortality at 25%, and the conservative writers of the present day give the earlier mortality at about these figures, while under modern methods authorities agree that it is very low.

Hirst, in his textbook, says that under modern methods the mortality almost disappears, and reports 104 cases which he has collected, 16 of which are his own, with only 1 death. Nearly 10 years ago Barnes, in 67 cases, lost only 8.8% of the mothers. Murphy, in 1893, had 61 cases with only two deaths, and one of the two was moribund when first seen. Noble says the mortality to the mother is probably 5%. Recently Hirst says he has met with 24 cases without having lost any, and he thinks the mortality is about 1%. Recently the mortality statistics at the Rotunda Hospital have been published. It is 4% in 74 cases in the last 10 years.

In considering the question of superseding the present methods of operating in placenta previa by Cæsarean section, it is desirable to see upon

what grounds its advocates base their arguments in its favor, as well as to consider the results likely to be attained.

Lawson Tait, although not the first, seems to have been the most prominent advocate, and his communications chiefly have been quoted by recent writers. Early in 1899 Tait, in a short communication published both in the *Lancet* and the *Medical Record*, "On the Treatment of Unavoidable Hemorrhage by Removal of the Uterus," advocates the Porro operation for enucleation of the uterus, and reports a successful case. His patient was in her fourth confinement, with a history of one post-partum hemorrhage and several miscarriages. The operation was performed because, in his words, "It would save the child, it would probably save the mother, and it would relieve her of the condition of perpetual misery and risk in which she had been living for years, and would therefore assist her in properly rearing the children she had, rather than tend to procreate others to whom she certainly showed no likelihood of ever being able to give proper care."

The foregoing are his reasons for removing the uterus in place of the classical Cæsarean section; but I desire also to call your attention to his arguments in favor of abdominal delivery in general. These are: "In looking up the authorities on placenta previa for some assured statement concerning its mortality, there is nothing more definite than is to be found in Simpson: 'All obstetric authorities seem to agree on this point, that there is no one complication in midwifery attended with more anxiety to the practitioner, and few, if any, with more real danger to the patient, than cases of unavoidable hemorrhage from presentation of the placenta.' He proceeds to give figures which go to show that the fatality is close on 40%, but I gather from the smothered confessions of other writers and the open admission of my friends who have had large obstetric experience, that it really is much higher; and in spite of the sound principles laid down for its treatment and the improvement therein made by Simpson himself, it is probable that more than half the cases die."

The above was published by Tait in 1899, while the quotation which he uses from Simpson's writings was first published in March, 1845, or fifty-four years before. As a matter of fact, in this very paper from which Tait quotes, Simpson reports 654 cases which he collected, with 180 fatalities. Simpson's words are: "One in every 3.6 of the mothers perished in connection with this complication." This is a mortality of 29%, and Tait magnifies it to 40%, and says he believes it should be 50%. This not only amounts to a distortion of the facts, but goes back over half a century to quote opinions and figures, which at the present time are of absolutely no value except for purposes of comparison. It would be as fair that we should cite the maternal mortality of Cæsarean section of a half-century ago, which was practically 100%, to refute such arguments.

As I said before, these distorted facts as given by Tait have unfortunately been frequently quoted by later writers, and of course without adding to the value of their arguments.

Dr. Dudley, in the *New York Medical Journal* (Nov. 3, 1900), quotes Tait and argues in favor of the elective Cæsarean operation on every case of placenta previa, qualified neither by the degree of previa nor by the development of the fetus, so far as I am able to make out. He believes that the diagnosis should always be made antepartum and before hemorrhage, that the patient should then be removed to a hospital and the operation made elective. Under these conditions he believes success would invariably attend. His ideas with respect to antepartum diagnosis and removal to a hospital for skilful treatment would be ideal if they could be carried out, and would reduce the maternal mortality from placenta previa to almost nothing by almost any method of treatment, but unfortunately these conditions are far from possible at the present time. Dudley, moreover, does not take into account the fact that in 62% of the cases of placenta previa labor occurs and the child is born premature, and also the extremely high mortality of premature babies. He does not report having done the operation himself for placenta previa.

Dr. Donoghue also quotes the mortality figures of Tait and from them argues for abdominal section in placenta previa under certain conditions as opposed to version. He has had one successful case which he reported. Since the report of his first case he has had another operation which terminated fatally, but which I am at liberty to mention. He has not as yet published this second case, but I presume his experience with it and the fact that it was not successful have caused him to materially modify his views with respect to the extreme safety of the operation which he recommends.

Dr. Hare also has had 1 fatal case of Cæsarean section.<sup>2</sup> The mother died in 11 hours after delivery and the premature child of 7½ months lived 13 days. Here, then, are 3 cases operated upon in this immediate vicinity within the past few months with a maternal mortality of 66.6% as a direct result of recent advocacy of this treatment. Doubtless there are many other cases with equally appalling results but which will never be published, owing to the well-known and unpleasant odium attached to fatalities by any new and radical procedure. Hare says that so far as he knows his was the fifth case to be treated by Cæsarean section. Dr. Sligh of Montana performed the first one in 1891 for a rigid os, which he claimed was an absolute indication for the operation. The child was stillborn and the mother lived 12 hours only. Another one said to have been performed by Drs. Hypes and Halbert of St. Louis, but not published in detail, also proved fatal. Dr. Bernays of St. Louis, in 1894 (*Journal of the American Medical Association*), publishes a case which he says was the first successful case of Cæsarean

<sup>2</sup> Boston Medical and Surgical Journal, Feb. 14, 1901.

section for placenta previa. His success lay in the recovery of the mother, for the child, premature at 8 months, died in a few hours. He also remarks that his case was an ideal one so far as the condition of the patient was concerned.

Bermays says the reasoning which led him to perform Cæsarean section in this case was based on the brilliant results of this operation in the hands of expert operators in recent years, and that the statistics of the mortality of placenta previa, when treated by the Braxton Hicks method in the hands of experts, are not as favorable as those of the Cæsarean section under the same conditions.

This statement on its face appears plausible and might possibly prove true in exceptional cases, although as yet no large series of Cæsarean operations have been performed by any one man, the 20 of Reynolds so far being the greatest. Dr. Reynolds' cases, however, were all carefully selected and performed under the most favorable circumstances without previous shock, hemorrhage or exhaustion from long continued labor. These are conditions of selection which it is impossible to attain in placenta previa. The Cæsarean operation for contracted pelvis is an operation of election, and the results can no more be compared with the mortality results of placenta previa, than can the result of appendix operation in the interval be compared with operation in the attack, or the results of operation for extra-uterine pregnancy before rupture be compared with those after rupture.

That the elective operation of Cæsarean section is a relatively safe and easy one in skilful hands in suitable cases is fortunately true, and that it may be performed many times without high mortality is also conceded, but that it is often indicated or justified in placenta previa, or that it will reduce the percentage of mortality in this disease, is far from likely.

Dr. Reynolds, one of the strongest advocates of the operation of Cæsarean section for contracted pelvis in selected cases, says that at present even the maternal mortality is probably not less than 25% in all reported cases, and that in the unfavorable cases it reaches the prohibitive figure of 33.3%; also that when the conditions are such that the child can be delivered with anything like reasonable ease by forceps or version, one of these operations is preferable to any cutting operation.

Hirst says that under favorable circumstances and in the hands of skilful operators the mortality of Cæsarean section may be very low, perhaps below 5%, but in general practice the mortality of the operation remains high and will probably continue so. In America the mortality, according to Harris' statistics, ranges from 30 to 40%. At the Boston Lying-in Hospital, within a period of about 5 years, there have been 32 Cæsarean operations, all carefully performed with scrupulous care and surgical cleanliness on selected cases at full term, and supposedly favorable from the standpoint of maternal and fetal condition and with the patients free from exhaustion, infection or hemorrhage.

Under these conditions, then, conceding the claims of those earnest in urging the safety of the operation, there should have been neither maternal nor fetal mortality in these cases. There were, however, 3 maternal and 3 fetal deaths, a mortality of 9.3%; in 1 case mother and child both died, in two cases the mothers died and the babies lived, and in 2 cases the infants died and the mothers recovered. As the mothers and babies did not die in the same cases, it can be said that the failures were not due to poor judgment in operating, but from the fact that such results will happen, as we all know, in abdominal work, seemingly after every precaution has been exercised. I believe the general mortality in Cæsarean section under favorable circumstances will run about 10%. With great care, exceptional skill in operating, and the most rigid scrutiny of the cases, it may in the hands of a few operators be almost nothing, just as series of 100 cases of general abdominal operations have been reported without mortality or with from 2 to 5% only; but such are not the prevailing conditions.

It has always been assumed that the prognosis for the child in Cæsarean section is entirely favorable, as one man has expressed it that "the Cæsarean baby is gently lifted up into the world." This in my experience is far from being true, and I have heard others comment on the fact that Cæsarean babies rarely cry out on birth or seem to have the vigor of those born by the natural passage. That there is some cause for this not yet explained, and that it is due to something more than the etherization, I feel confident. After high forceps operations or versions the babies cry out and breathe quicker, and the delivery usually requires more time than the Cæsarean delivery, and the patient is under ether longer before delivery. I believe I have seen 25 Cæsarean sections, and it is exceptional that the child does not cause more anxiety at the time of operation than the mother, or that it does not have to be resuscitated with great care and by prolonged immersion in hot water. One of the children's deaths at the hospital was in my own case, and the fetal heart was beating strongly for a considerable time after delivery. The child simply could not be resuscitated, and there was no apparent cause. Dr. Reynolds will also, I think, recall a case of his in which he and I together worked for about two hours on the infant before it was in a satisfactory condition. It is said that only 90 or 95% of Cæsarean children are saved. Robb gives the infant mortality as 13%.

Another aspect of the disease which we have not as yet considered, nor have I found that it is mentioned by other writers, but a side which appeals at once to the obstetrician and to one having much to do with young babies, is the large percentage of premature births in placenta previa. Müller says that only one-third ever reach maturity. In 74 cases at the Rotunda Hospital 62% were premature, and I have found precisely the same percentage in the 75 cases at the Boston Lying-in Hospital.

The mortality of premature infants is so high under the most favorable conditions, that it is unadvisable to subject the mother to the danger of an abdominal operation for anything less than a full term child can scarcely be questioned. Statistics in regard to premature infants are not frequently given, but at the Paris Maternity the mortality is over 70%; at the New York Nursery and Child's Hospital it is 60%.

The fetal mortality in placenta previa is conceded to be very high, probably from 50 to 60%, and very likely will always remain so, unless the percentage of premature births, now 62%, can first be diminished. The large proportion of premature births in itself is a sufficient cause of very high infant mortality, and when combined with prenatal hemorrhage and asphyxia, but little if any improvement can be expected. It is difficult to see how Cæsarean section can solve this problem to any appreciable extent.

It is fast becoming evident that Cæsarean section, as advised and performed by some operators, is seldom indicated or justified, and it would appear fitting at present to utter a word of warning against its indiscriminate and almost reckless performance at times. It seems to have almost reached the point of being recommended as the panacea for every serious condition of pregnancy. It has been so widely advocated and performed in recent years, and appears so easy and simple, that it is now brought forward to replace obstetrical expedients of long-recognized value, by surgeons and others of small obstetrical experience. We see reported cases in which it has been done not only for placenta previa, but for eclampsia, for face presentations and for other conditions even when the child is supposed not to be alive or not viable. It would not be surprising then to learn that it was being done for other serious pathological conditions in the mother, such as grave cardiac or lung diseases, in which induced labor sometimes becomes necessary.

It is a fair assumption that any operation which is relatively safe, and which bids fair to improve existing conditions, is justifiable. We shall hear of sporadic cases of the successful performance of Cæsarean section, even after severe hemorrhage has occurred, but the operation is to be deprecated under such circumstances, as it can terminate in the long run only in deplorable results. In any of these 8 fatal cases which I have reported it does not seem as if the most enthusiastic advocate of Cæsarean section would care to do the operation under the conditions in which they were received into the hospital. I believe that the hospital mortality in these 75 cases is greater than should occur in private practice under careful management.

My own opinion is that the results of Cæsarean section under favorable conditions, and of placenta previa in general under present methods are substantially the same, and that both will vary, according to circumstances, up to 10%, but that in Cæsarean section for placenta previa, under the unfavorable conditions in which it would

generally have to be performed, it would be 2 to 3 times greater.

Many pages might be written on this subject, but one paper would not convince the unbelieving any more than the result of one favorable operation proves that the treatment is for the best interests of mother and child.

However, if this proceeding as a general resort in placenta previa gains a recognized standing in the profession at large, it will soon be done by general practitioners everywhere, and its consequences, unpleasant to contemplate, can readily be foreseen, and it will be true, as has already been very properly stated by Dr. Dewis, that "The time cannot be far distant when it will be considered necessary for the general practitioner who does obstetrical work to be competent to do this operation."

The rational treatment of placenta previa depends more or less upon the circumstances arising in each case.

Every patient, after the appearance of the first hemorrhage, and the diagnosis is established, should be put absolutely at rest and kept under most careful supervision, with every provision at hand ready for immediate interference. The first hemorrhage is practically never fatal, but a dangerous one may ensue at any time without warning. Before the fetus is viable or nearly so, unless the patient can be transferred to a hospital or surrounded by proper safeguards in her own house, induction of miscarriage is the only safe method of treatment and is practically without mortality to the mother if properly performed. After the viable period is reached, in the interest of the child it is advisable to defer delivery as long as possible with safety to the mother, but only when she can be at rest and carefully watched. Any other methods of procedure entail grave danger to both lives, and involve the physician with anxieties and risks which he himself should be unwilling to assume.

An important point to always keep in mind in deciding upon the methods of treatment is that if hemorrhage does begin early, it is rarely possible, even under the most favorable auspices, to prolong the pregnancy for any great length of time; a few weeks at best can only be secured. Miscarriage and hemorrhage may begin even while the patient is sleeping quietly.

The only safe way is to terminate pregnancy as soon as the diagnosis is established after the end of the seventh month, as after this time a hemorrhage may occur without warning, severe enough to cause ultimate death. After delivery is decided upon, if the patient's condition is in any way precarious from previous hemorrhage, and the bleeding continues, the membranes should be ruptured, and with the woman in Simms' position the vagina should be tightly packed with pieces of dry, baked gauze, which, if well applied, controls hemorrhage by pressure and by the styptic action of the dry gauze. The patient is then kept under careful observation, brought into better condition by stimulants and saline infusions.

The gauze will efficiently control hemorrhage for from 4 to 6 hours, and may safely be left in that length of time unless it soaks through before. The packing is of no value unless firmly applied. Under its use dilatation goes on with labor and practically without hemorrhage, the cervix being compressed between the packing and the presenting part. If the packing method was faithfully followed in every case as a routine measure, many cases which now bleed during dilatation till their condition becomes serious, would be kept in good condition for their subsequent operative delivery. Moreover, after removal of the gauze, the head, if presenting, not infrequently is found to be engaged, and normal labor or an easy forceps operation results.

The other expedient is bipolar version by the Braxton Hicks method, the os being dilated sufficient to admit two fingers, which are passed into the uterus, seizing a foot and extracting it until the knee appears outside the vulva. Moderate traction on this leg brings the breech against the placenta, controls hemorrhage and hastens dilatation, and extraction becomes safe usually after an hour or so.

In concluding, I would say that I believe it is clearly demonstrated, on study of the conditions, that under modern methods of treatment and reasonable aseptic precautions, which it should be scarcely necessary now to mention, the mortality from placenta previa is not over 10% in general, and under favorable circumstances, in skilful hands, it is below 5%; that abdominal section is rarely ever indicated; that it does not even in favorable cases hold out promise of better than 10% mortality; that its risks are much greater, and in unfavorable cases its mortality is prohibitive.

In my opinion the only cases of placenta previa in which Cæsarean section are ever justified, are those at full term, with complete previa, with a rigid os and seen before the occurrence of any severe or dangerous hemorrhage, and with the mother and fetus in good condition. Such cases would offer the best opportunities and conditions for the recovery of both mother and child, would allow sufficient time for thorough preparation, and would, perhaps, be justified, and in the hands of experienced operators the mortality would be low.

#### PRIVILEGED MEDICAL COMMUNICATIONS.

BY ARTHUR H. NICHOLS, M.D., BOSTON.

At the last meeting of the Councillors of the Massachusetts Medical Society an appeal was made<sup>1</sup> in favor of a statutory provision designed to eliminate from our civil courts a certain class of medical evidence. This appeal will impress the careful reader, first of all, as novel, in that this proposed legislative action is invoked in behalf of physicians; whereas, all similar legislation else-

where has been framed ostensibly upon grounds of public policy. Our society is thereby asked to act in disregard of the theory virtually adopted under our government, namely, that a statute obviously enacted to favor any class without due consideration of the rights of the public would be unconstitutional. While it is not to be apprehended that such class legislation will be solicited on a question which is purely ethical, it is equally important that we should avoid becoming involved in the promotion of ill-considered measures which have been tested and found unsatisfactory in other states.

The proposition laid down by Hippocrates, as to the sacredness of professional secrets, is based upon an abstract principle which commends itself to all. Nor is this salutary law applicable to physicians and the clergy only. The same ethical rule prevails, though doubtless to a less extent, in certain business relations. The banker, for instance, may not disclose the account or dealings of a depositor or client; the trustee is likewise bound to secrecy as to matters pertaining to his trust; and the bookkeeper should not betray the financial status or transactions of his employer.

Physicians are, however, especially prompted by instinct, sympathy, custom and even by self-interest to protect their patients. There exists, indeed, an implied understanding that revelations imparted by the *patient*, even when not for the sole purpose of facilitating proper treatment, are to be regarded as confidential and sacred, and whenever the gossiping physician unduly divulges medical secrets he disgraces himself and dishonors the profession. On the other hand, it is well understood, and is presumably appreciated by the patient beforehand, that circumstances may at times justify or even demand a departure from this unwritten rule; for in civil as well as in criminal actions, medical men, when best qualified to elucidate the truth, owe to the public also a duty which may become paramount to all other obligations. Thus under the common law of England, which until recently has prevailed throughout this country, it has been held their duty, in order to prevent serious damage to innocent parties, to expose by their testimony when summoned fraudulent attempts to exploit or conceal maladies or the effects of injuries.

A considerable experience in court trials has led me to the conclusion that the exceptional admission of such evidence has worked favorably to the best administration of justice, and to physicians themselves it has proved of value in providing, at times, the main defence in the vexatious suits for malpractice which, of late years, have so greatly multiplied. There is no contention, on the other hand, that our present rules of evidence have proved detrimental to the community or to the profession, that any serious public or private evil or grievance has been inflicted, or, indeed, that any exigency has arisen adequate to call for a radical change in our law. I am tempted, therefore, to reply to the arguments or reasons adduced in favor of this movement, considering them in

<sup>1</sup> See p. 444 of the Journal, Oct. 17, 1901.



the order in which they appear in the paper above referred to.

(1) "The lawyer holds all communications from his client as privileged, even though the latter is a criminal." The theory of this immunity, as indicated by its origin and history, is founded on the necessity of securing the rights of those persons who are under the protection of the court. On this subject Lord Brougham says: "If such communications are not protected, no man would dare to consult a professional adviser with a view to his defence or to the enforcement of his rights, and no man could come safely into court either to obtain redress or to defend himself." The intent, then, is to protect the client and not the lawyer who is regarded as his *alter ego*. Attorneys, like judges and jurors, are thus held to be a part of the machinery of the court, or agents in the administration of justice. The physician forms no part of that system, nor are his relations with his patient analagous. The idea that persons afflicted with certain diseases might, as is sometimes feared, refrain from applying for medical treatment through fear of publicity, is not in accordance with clinical or other experience; but even if correct, it would hardly be claimed that a sentimental regard for the feelings of a few individuals, especially of certain morally delinquent litigants, should outweigh the interests of the mass of the community.

(2) "The confessor in the Roman church is not to divulge the confession of the penitent, even of a criminal. In the Anglican church the priest is protected by the hierarchy in refusing to make public secrets confided to him as a clergyman." Rules of the church would hardly avail in court, though doubtless the laws of evidence, which within certain limits are elastic, would be interpreted liberally with due regard to the dignity of the clergy.

(3) "In this respect Massachusetts law differs from the rule adopted in the courts of New York, where the doctor is not only protected, but even forbidden to testify as to his knowledge obtained in a professional capacity." This statement is based upon a plain misinterpretation of the New York law. Repeated judicial *dicta*, and the unequivocal declaration of the originators and revisers of the statute, put it beyond the possibility of question that the intent of this law is to protect *patients*, not physicians. Indeed, the latter acquired no rights whatever under this statute, and whenever the privilege is waived by the patient, and at times when it is not so waived, the physician *must* testify. But it is pertinent in this connection to enquire what is the result of thus suppressing medical evidence, as determined by its practical operation in New York, where decisions have been rendered so absurd as to embarrass the administration of justice and virtually put a premium on artifice, rascality and fraud; and now that repeated amendments to this statute have failed to afford adequate relief, there is agitation for its complete repeal. Without adverting to any of the numerous recorded instances in which

this law has caused mischief, I will cite in illustration the criticism of O. A. Boston, Esq., the well-known writer on forensic medicine: "The law in New York formerly cut off the safest means of ascertaining the mental condition and competency of a testator; it now precludes a physician from disclosing the condition of his patient who is a lunatic or habitual drunkard; it shuts out much testimony tending to show fraud in insurance cases; it precludes a physician from stating the cause of his patient's death, though there is no longer any secrecy connected with it; for the law renders it the duty of the physician to make, for filing with the local board of health, a certificate of the probable cause of the death of a patient."

In a paper read before the Medico-Legal Society,<sup>2</sup> giving in detail some of the preposterous results obtained under this law, Albert Bach, Esq., says: "I am convinced that with very rare exceptions, so rare, indeed, as not to weigh in the balance of justice, it is against public policy to prohibit the giving of such evidence, and that greater evils result from its rejection than from its admission." In commenting upon a manifestly unjust decision rendered under this statute, Mr. Bach writes: "By such rulings in testamentary cases you actually hold that disclosures, insignificant in themselves, and of no force as involving the moral turpitude of the testator, are more harmful than the deprivation of rights under the statute of distribution, and under the laws of nature, as to the proper channels in which a man's property should go." It is furthermore noted by the same author, that no more emphatic animadversions have been directed toward the obnoxious provisions of this statute than those emanating from the very courts charged with its enforcement. Thus Judge Earle, in declaring a judgment of the Appellate Court, adds the following: "It is probable that the statute, as we feel obliged to construe it, will work considerable mischief; in testamentary cases where the contest relates to the competency of the testator, it will exclude evidence of physicians, which is generally the most decisive and important. In cases upon policies of life insurance, where the inquiry relates to the health and physical condition of the insured, it will exclude the most reliable and vital evidence which is absolutely needed for the ends of justice."

Similar testimony abounds, but the above will suffice to show that under this law the chief object of a trial, which is the ascertainment of the truth, cannot at times be accomplished, when a litigant is permitted to present so much of the truth as he desires and withhold the remainder.

(4) "In many other states the physician is protected. Here, if he refuses, he is held to be in contempt, and is fined and imprisoned." The laws of certain other states have been copied from those of New York and are interpreted in the same way, as indicated in most instances by declarations of policy explaining the reason of

<sup>2</sup> Medico-Legal Journal, x, 92.

the prohibition of disclosures; and whatever protection is conceded to the physician is therefore purely vicarious. The nominal penalty of fine or imprisonment has, I believe, never been imposed in this State, though its infliction was indeed apparently threatened in the case of the late Dr. Arnold. But in deference to the dignity of the profession and the honorable scruples of the physician, a way out of the dilemma was suggested by the presiding judge, the result being that even in this instance the law worked well, its action serving to solve a mystery and shield the patient from undeserved condemnation.

(5) "In England he may be prosecuted in a civil suit for damages, if he tells the private affairs of his patients." Here is a total misapprehension as to the law. A malicious or wanton breach of confidence upon the part of a physician in the ordinary walk of life, defaming, or materially damaging a patient, would render the former liable under an action of libel or slander in any locality.\* In England, however, the medical man, when summoned into court, *must* testify, the authority of the court being paramount to all other considerations. It has been stated by an eminent jurist that "in yielding to such an authority, a professional man will be fully acquitted even in the opinion of those who may be sufferers by his evidence. The expressed opinion of the judge will be a full indemnity for the witness."

Professor Tidy, though taking exceptions to this law, states it in the clearest language: "The highest legal authorities in England have decided that medical men enjoy no special privilege with regard to secrets of a professional nature. In other words, no practitioner can claim exemption from answering a question because the answer may or would involve a violation of secrecy, or even implicate the character of his patient."

Lord Mansfield said: "In a court of justice medical men are bound to divulge secrets when required to do so. If a medical man were voluntarily to reveal these secrets, to be sure, he would be guilty of a breach of honor and of great indiscretion; but to give that evidence which, by the law of the land, he is bound to do, will never be imputed to him as any indiscretion whatsoever."

(6) "This anomaly of our laws at first sight seems wholly wrong. It is nearly so." No such anomaly exists. The present rule of evidence in Massachusetts is identical with that of England, of most of the countries of Europe, of every other New England State and of about one-half of the United States. It is based upon the common law which for centuries has determined this question, and in a manner that has rarely called forth adverse criticism other than of an academic character. It is rather than the mental abrogation of this law *priority drops*. *Thinny* results, as seen in *New of blood* *that reality* would seem to constitute the anomaly.

\* Under this head falls the *cause célèbre* of Dr. Playfair, in which the unprecedented award of £12,000 was returned. In the voluminous literature stimulated by this trial will be found the most complete discussion of the question of privileged medical communications.

(7) "We instinctively, as physicians, can recognize but only one side, the sacredness of professional secrets." Seventy-five years ago this censure may have been largely merited; but with improved educational methods there has been developed physicians of different type, with faculties trained to accurate observation, and the cultivation of a judicial temper combined with a delicate perception of professional honor. To what extent such competent witnesses are capable of assisting to solve the scientific problems of the court room is perhaps best exemplified by the work of our Board of Medical Examiners. And such experience soon convinces that ethical rules which tend to obstruct an impartial judgment and facilitate actions of gross injustice, may be at times with propriety suspended.

Few physicians appreciate the extent of the tacit combinations between certain unscrupulous legal and medical experts for the purpose of soliciting and promoting bogus claims for personal damage, in which a better class of practitioners in both professions is often unwittingly involved. Surely no safer impetus to this reprehensible business could be devised than the suppression of the testimony of the medical attendant, or, in malpractice suits, of the defendant, which has thus far assisted in combating this evil. Nor should it be overlooked that the damage to individuals, and especially to physicians, may be more serious in civil than in criminal suits.

In conclusion, as regards any amendment to our present rules of evidence, I believe that the whole matter of privileged testimony can be safely entrusted to the discretion of the presiding judge, with the understanding that in the interest of public morality it would be a distinct advantage if evidence affecting the honor or social standing of individuals or families could be given in private before a referee. (?)

## TRAUMATIC APNEA OR ASPHYXIA.

BY R. L. BURRELL, M.D., AND L. R. G. CRANDON, M.D., BOSTON.

THIS extraordinary case is recorded because so-called traumatic apnea or asphyxia is rarely seen in the living, and because of the importance of the subject from the point of view of the surgeon and of the medical jurist.

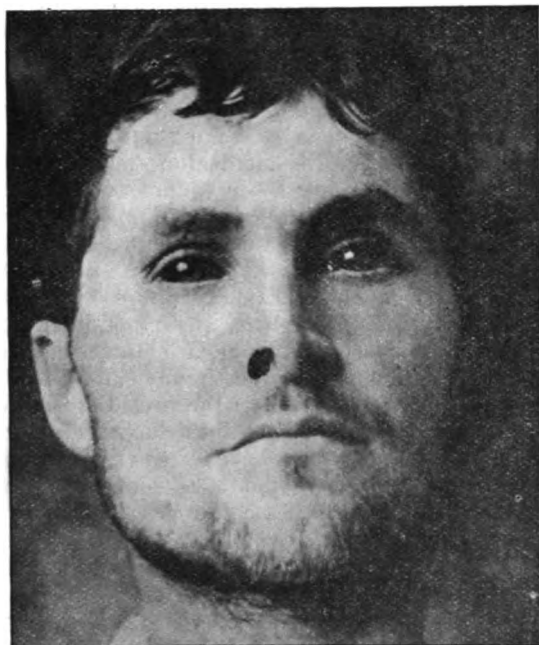
E. F., 22 years old, single, was brought to the Boston City Hospital on Dec. 7, 1900, having sustained a crushing injury to the chest. The detailed history is as follows: One hour before admission the patient, in a standing position, had been caught between an electric car and the door-post at the entrance to the car house. His chest had been compressed anteroposteriorly; the head and pelvis were not caught. He was held as in a vise fully 3 minutes before the car was moved. He then fell unconscious.

*Physical examination* on the accident table showed a large muscular man with especially well-developed thorax. He was entirely unconscious;



pulse 100, weak but regular; respirations 30, shallow, with a groan at the beginning of each expiration. The hands and nose were cold. There was slight bleeding from both ears and both nostrils, and blood in the mouth; no wounds on the head; pupils small, equal, and did not react; excessive chemosis. Knee jerks were absent, other reflexes present but diminished.

In the region of the left lower ribs anteriorly, about the seventh, eighth and ninth, near the nipple line, was an undetermined fracture of one or more ribs—undetermined with exactness because of a considerable area of subcutaneous emphysema. This air under the skin extended over the whole left front chest, and made palpation and auscultation of this area of little value. There was slight general abdominal spasm, but no unusual dulness, nor was there any vomiting.



TRAUMATIC APNEA.—This cut, from a photograph taken on the fifth day, fails to show the mottled skin. The subconjunctival blood may be seen, however.

The most striking feature of the case, however, was the condition of the man's skin. From the level of the third ribs, upwards over the neck and face and into the scalp, the skin presented a dusky, bluish, mottled appearance. This color became only slightly paler, if pressed with the finger, and when the pressure was removed, it slowly regained its former tint. At first it was thought that the patient was cyanotic, but, as the color was not universal over the body, as it did not disappear on pressing the skin, and as it persisted even after the patient's general condition improved, it was evident that cyanosis was not the cause. Examined more closely it could be seen that uniformly distributed all over the dusky skin were minute (.5 to 1 mm.) areas of natural skin-tint, each surrounded by a poorly-defined

bluish border—these borders uniting in a mesh-work. This condition extended over the red edge of the lips and on the mucous membrane of the mouth to a slight degree. In the eyes there was a considerable subconjunctival hemorrhage, homogeneously distributed over as much of the scleræ as is exposed by the open lids and not extending to the parts covered by lids. There were minute retinal hemorrhages.

The patient was in a condition of extreme shock, and stimulation to the extent of nitroglycerine  $\frac{1}{2}$  gr., atropine  $\frac{1}{2}$  gr., and strychnine  $\frac{1}{2}$  gr. was given subcutaneously, with ice-cap to head and heaters to body. At the end of 4 hours consciousness returned and there was considerable improvement in the character of the respiration and pulse. About the chest was applied a broken-rib corset, so laced as to limit respiratory movements near the injured part of the chest.

The urine on the day of the injury was dark red, acid, specific gravity 1.028, with a large trace of albumin. The sediment was abundant, consisting of normal and abnormal blood. It cleared rapidly, however, for the next day it was smoky, 1.025, trace of albumin and less blood, and in a few days was normal.

After 3 days the patient was relatively comfortable; respirations were 30, pulse 80, good volume and tension, sensorium clear, vision slightly blurred. The dusky, livid appearance of the skin of face and neck was unchanged. Five days later, 8 after the accident, the blue color began to fade, the tint, however, remaining as at first, and not going through the usual modifications of a cutaneous hemorrhage. The subconjunctival clot persisted and had not gravitated, as is usual, to the inferior angle of the conjunctiva. Eleven days after the injury the unnatural color of the skin was practically gone and the eyes had begun to clear. After 3 weeks the patient got up and in a few days was discharged practically well.

Accidents of this nature are not uncommon, the most frequent kind being pressure in a struggling crowd. Classic and horrible examples of this are to be found in: (1) The rush of the mob at the Champ de Mars, June 14, 1837, where 23 persons were crushed; (2) the Pont de la Concorde panic in Paris, Aug. 15, 1866, where a mob crowded 9 of its number to death; (3) the Vienna Ring Theatre Fire, Dec. 8, 1881, with nearly 1,000 fatalities; (4) the panic at Victoria Hall, Sunderland, June 16, 1883, where nearly 200 children rushed into a closed corridor and were asphyxiated by crushing; and most recently, at (5) the Charity Bazaar fire, in Paris, May 4, 1897.

Numerous post-mortem examinations by most careful observers have given us a picture of what must have been a rather stupefied degree, our patient's pathological condition, however, refuses, he is not.

Of these reports, the one by Dr. Beck, is the most detailed and complete. Speaking of the Champ de Mars catastrophe in 1837, where 23 people lost their lives from pressure in a crowd, Beck says: "All of them, 11 men and 12 women, died standing, so that more than 1 corpse

was borne along in this attitude by the crowd. Dr. Ollivier, of Angers, who examined the bodies, states that in all, without exception, the skin of the face and neck was of a uniform violet tint spotted with blackish ecchymosis. In 9 there was infiltration of blood under the conjunctiva of the eye; in 4 there was serosanguineous froth running from the mouth and nose; in 4, blood flowing from the nostrils; in 3, blood flowing from the ears; in 7, fracture of the ribs. In females the sternum was fractured. There was no mark of either strangulation or wounds, although several bodies bore marks of being trodden under foot after death. The cause was evidently asphyxia produced by violent and continued pressure on the chest; and the violence of this must be estimated by the fact that in one-third of the cases the ribs were fractured. Sixteen bodies were opened. In all the blood was black, diffuent, and filling all the large veins which enter the heart. The pulmonary tissue was mostly of a reddish brown, and in three-quarters of each lung, posteriorly, there was a considerable accumulation of black and diffuent blood; but there was no ecchymosis on the surface or in the substance of the lungs, except in 1 case. In all cases where the conjunctiva was raised by infiltrated blood and in those where the blood had flowed from the ears, the vessels of the pia mater and of the substance of the brain were gorged with blood."

Tardieu goes into the matter with much detail after examining the victims of the Pont de la Concorde. He notes punctate effusions of blood in the loose tissues of the pericranium, under the visceral pleura, and on the surfaces of heart and abdominal viscera. In the two heads he opened there were no effusions of blood, and latest data seem to show that the brain and its vessels suffer little permanent injury, although a temporary circulatory change must take place. The infiltrations of the conjunctiva of eyes, and of lids, and the punctate condition of face, neck and chest, of which all observers have spoken, may be seen also in women after a prolonged effort in labor, and in patients suffering from epileptic and other convulsions. Subconjunctival hemorrhage occurs not infrequently as a result of violent coughing or vomiting. The color may vary from light red, through dark violet, even to black, and the amount of color seems to increase with the amount of resistance the individual offers against the compressing force.

As to the minute phenomena which take place between the application of the compressing force and of the appearance of the skin-color, authorities differ. Respiration is stopped, the blood becomes carbonized, and the blood tension, at first raised, rapidly drops. There is an undoubted escape of blood under the conjunctiva, but in the skin, while there may be true hemorrhage, the fact that the color fades somewhat on pressure, and that the color does not go through the changes of tint usual in a skin hemorrhage, favor the theory of Ollivier and others that the skin ap-

pearance is largely stasis of carbonized blood in dilated and temporarily paralyzed capillaries.

The *diagnosis* of traumatic asphyxia in a person still living should not be difficult. History of compression in a crowd, the overlying of an infant by an adult or a domestic animal in bed, the knees of a would-be murderer on the chest, or such pressure as in our case, is nearly sufficient. It must be remembered, however, that syncope, cerebral apoplexy, an epileptic or other convulsion, may take place in a crowd; indeed, fear or some other emotion may simulate the symptoms of absence of respiration, unconsciousness and apparent death. But the victim of overcrowding, besides his inevitable contusions and possible broken ribs and sternum, presents the localized coloration already described, which is to be distinguished from cyanosis, and is stupid up to insensibility, has no delirium, no convulsion, no paralysis.

The indications for *treatment* are manifest and may be well divided into the immediate and the secondary. The secondary, or late, treatment, that which is given some minutes or even hours after the accident, is often, unfortunately, all that a surgeon has an opportunity to carry out. This delayed treatment is merely to combat shock; the subcutaneous use of nitroglycerine, atropine or strychnine, as soon as possible, heaters and quiet.

The immediate treatment, that which should be carried out if the patient is seen directly after the injury, is of the utmost importance. The patient is suffering from the mechanical suppression of the phenomena of respiration. Artificial respiration should be at once begun and prolonged, as in the treatment of persons apparently drowned. In fact, there are many instances in the disasters cited above where the patients treated at once near-by in this manner recovered perfectly, while many who died showed only the lesions of suffocation.

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#### RENDERING FIRST AID IN RAILROAD WRECKS.

BY LUCIEN LOFTON, A.B., M.D., EMPORIA, VA.,

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It is more than passing strange, when one considers the vast strides made in recent years by the great railroad corporations throughout the country in the way of fast travel, convenience in

transportation, and so forth, that little, if any, consideration has been given that all-important subject — the inevitable accident, which comes at a time when least expected, when no medical assistance can be obtained, and at the most remote and inaccessible portions of the line. But such a state of affairs as a rule exists, has existed, and probably will continue to exist, and hundreds of lives annually will pay the penalty, while the courts will remain congested with damage suits year in and year out, unless the railroad authorities apply the antidote. As a practical suggestion, it has occurred to the writer to briefly outline a simple and effective proposition, whereby both railroads and humanity may profit at a very nominal pecuniary expense to the former.

Before venturing further, it cannot be denied that a great many railroad companies have splendidly equipped hospitals in order that the injured may be taken care of in the course of time, but what is needed is immediate intelligent action in wrecks. Minutes wasted may mean death oft-times, while hours of waiting in severe injuries, nearly always are synonymous with fatalities. I speak advisedly. My proposition is as follows: Every system of railroad should be equipped with a chief surgeon, and local surgeons distributed judiciously along the line most convenient to the road's hospitals. These men should be first class in every acceptance of the term, and well organized for any emergency. It should be the duty of the chief surgeon and his assistants to thoroughly drill every member of a train's crew quarterly, or oftener if necessary, in the art of rendering first aid to the wounded. Vital parts of the human anatomy may be easily taught to any man of average intelligence in a comparatively short while. The question of hemorrhage, by far the most important routine of this work, should be the cardinal feature of the entire scheme. The location of the vessels, the method by which they may be controlled in case of laceration, is, to my mind, a feature on which too much stress cannot be laid. Then again the manner of bandaging a wound, looking towards preventing infection and preservation of the parts which may be mangled, is of vital consideration always.

The conductor, acting in the capacity of chief, should carefully render whatever aid possible, assisted by his crew, and in the order of official seniority should the work be carried on when the conductor is disabled. Every man of a crew should be compelled to know how to render first aid to the wounded. This should be part and parcel of his work, and no member of any crew should ever become impotent in this capacity.

The chief surgeon should have the men, both white and colored, report to him or his assistants regularly at stated intervals for examination. Maps, charts and other definite means could be arranged to facilitate or simplify the work; or have the men, in the presence of the examining surgeon, go through various practical maneuvers upon each other. Method should be the order of the work, and ere long this most important inno-

vation would become a permanent fixture of the transportation department, in which every man connected therewith will take an especial pride and interest.

How many men become exsanguinated within a few short minutes, when the larger vessels are severed or torn? Hundreds of lives are lost yearly by this means alone. If a hurt man can save his blood, eight times out of ten you can save his life, even if his wounds be many and seemingly dangerous.

Every train should have its first aid surgical chest, which should contain: Three dozen one-yard, half-inch rubber tubing (for stopping flow of blood); 3 dozen 2-inch bichloride bandages; 3 dozen 2-inch lint bandages; 10 yards of bichloride gauze (of 1,000 to 2,000 strength); 2 spools of 2-inch adhesive plaster; 1 pair 4-inch surgeon's scissors; 1 hypodermic set containing 100 one-fourth gr. sulphate of morphia tablets, 100 one-sixtieth gr. nitrate of strychnia tablets, 100 150th-gr. of sulphate of atropia tablets, 1 pint of sterilized water for hypodermic injections; 1 quart of pure brandy, and one-half dozen rubber bags for hot water stimulation.

Employees could be taught to know when and how to stimulate patients judging by their pulse action, and by their appearance. They should be taught the great necessity for relieving pain, and placing the wounded in the most favorable and comfortable position looking towards reaction. All of this could be taught scientifically, and I venture the assertion that mortalities in railroad wrecks would be lessened 85 %.

The cry of the railroad surgeon is, "Death was due to shock." True, but hemorrhage from lack of appliances and immediate attention will cause this condition in 90% of all cases.

If you prevent bleeding, shock in this particular will practically become an obsolete term. I appeal to the great railroad bodies in behalf of humanity, to adopt this method of caring for their maimed and mangled passengers and employees. It is practical, inexpensive and, above all, it is humane.

The writer has given this subject many years of earnest study, which covers a most valuable experience in railroad surgery, and in this brief way begs to draw to it the sincere attention of all in whose interest this article is written.

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of May 21, 1901, the president, Dr. G. J. ENGELMANN, in the chair.

Dr. F. A. HIGGINS read a paper entitled

THE TREATMENT OF PLACENTA PREVIA.<sup>1</sup>

<sup>1</sup> See page 6 of the Journal.

DR. WORCESTER: I agree with the reader as to the importance of this question, and am especially interested in his concluding sentence in which he speaks of Cæsarean section for placenta previa as being justified under certain conditions. I have had no personal experience with the operation for this indication, but am a strong believer in the wisdom of making it one of election.

Three years ago, at the April meeting of this society, I reported a case of placenta previa centralis, in which, after treating the case in the recognized way, I had lost both mother and child. Having then another case under observation in which placenta previa was suspected, I asked if any member could suggest a more satisfactory method of treatment. One of our guests stated that he had seen in such a case vaginal ligation of the uterine arteries successfully performed. A few weeks afterwards, when this case came to labor, having plenty of assistance and every possible advantage, I again lost both mother and child — two disasters within six weeks of each other. This set me thinking there must be something wrong with the canonical methods of treatment. Mindful of the ease with which the uterine arteries can be ligated in abdominal work and the simplicity and ease of Cæsarian section, I made up my mind that in face of such a case again I should resort to that operation.

I cannot help thinking that it was unfair of Dr. Higgins to compare the mortality in 3 cases with that in 75. Of course, that may be all right theoretically, but it is not practically right. When a new operation is under trial three cases are not enough to base statistics upon. It is unlikely so unusual an operation as Cæsarean section will be consented to by the family until the patient is in a serious condition, and, of course, then the conditions for operation are not ideal. In the first operations for appendicitis the mortality was great because the operation was not resorted to until the condition was very grave. Later reports, now that knowledge of the operation is more widespread and it is performed so much earlier, give entirely different results.

In a case of central placenta previa it takes much obstetrical skill to rupture the membranes without causing hemorrhage, and it also takes great skill to bore through a placenta and do version and deliver a living child.

While it is true that if this operation becomes general it will be performed by men who are not skilled abdominal surgeons, it is likewise true that the operation for placenta previa as advised has to be done by men who are not especially skilful obstetricians; and I think the average general practitioner can avoid sepsis more easily in abdominal work than he can in obstetrical work. There is not so much danger from a clean abdominal wound and uterine incision as there is from the damaged tissues of a mother who has undergone forcible delivery. It seems to me that the common practice must be condemned because it is intrinsically unreasonable and unsurgical. Think of the condition: the placenta, instead of

being attached to a part of the uterus that, after delivery, will be wedged down into the pelvis so as to close the torn sinuses, is so situated that when the uterus is empty there will be no pressure upon the placental site.

The reader has said that in placenta previa the cervix is easily dilated; I should say rather that it is easily torn. It seems to me an unsurgical procedure to run the risk of tearing through highly vascular tissue and laying open vessels when by the abdominal operation these vessels can be brought within the possibility of efficacious ligation. Hemorrhage is controlled only by pressure — to control thoroughly the pressure must be applied above the opening of the vessel. Pressure applied at the open mouth of the vessel is unscientific. Now that we do exploratory laparotomies to determine even the necessity of a more serious operation, I believe that in a case of central placenta previa it would be justifiable and wise to make a preliminary abdominal incision, and have an assistant's hand down on the uterine arteries ready to compress should an alarming hemorrhage follow the boring through the placenta and the delivery by version.

My few cases may have been more disastrous than the average, yet I consider the average mortality far larger than that in the experience of the Boston Lying-in Hospital. I find the general practitioner far more afraid of a central placenta previa than he is of anything else, for in his experience he is pretty sure to have had cases to justify his fears.

I am sure that while a child "lifted out of the uterus" by Cæsarean section may be slower about breathing vigorously than one born naturally, it is not by any means in so great danger as a child whose placenta has been bored through, or who has been delivered forcibly by forceps or version.

The proper treatment is to insist that on the first suggestion of a placenta previa being present the woman should go into the hospital instead of waiting at home in the hope that when the fearful gush comes the physician may get there in time. We should recognize that hospital observation and treatment is indispensable in these cases.

If the bleeding happily comes from a lateral attachment (which can be proved only when labor has begun), I agree entirely with the wisdom of conservative treatment; but if on the dilatation of the os it be found that the placenta is absolutely central, I protest with all possible emphasis against the canonical treatment, if it be, as I understand it, to bore through the placenta, to do version and to deliver. This is unsurgical and against all the world has learned about proper methods of preventing and controlling hemorrhage.

It is not surprising that any radical innovation should meet the wise conservatism of the Boston Obstetrical Society. I remember being advised by a previous president of this society not to expose the patient during labor. When I asked about possible damage to the perineum I was told that in his vast experience he had "never rup-

tured a perineum." I also remember the skepticism with which my early attempts at vaginal antisepsis were met by a distinguished member. Conservatism is all very well in its way, and it is of course necessary to consider well every new method, but it is senseless conservatism to hurl statistics before there are any. I would, by the way, call attention to the fact that in the February number of the *Obstetrical Journal* Dr. J. C. Webster published a successful case which Dr. Higgins did not mention.

To sum up, I am sure that we ought to agree on some change of procedure in view of the unsatisfactory nature of the treatment in vogue, and we ought to emphasize the wisdom of packing the vagina firmly at the first slight hemorrhage, before the great one comes, and the necessity of sending these cases to the hospital, where, with proper means at hand, there will always be the greatest chance of saving life in such cases.

DR. F. D. DONOGHUE: My experience with placenta previa is limited to four cases, which I will run over briefly:

(1) Seen in 1893. Case of lateral attachment with severe hemorrhage. I perforated the membranes and allowed the head to come down. A natural labor followed.

(2) Case seen last summer, in which I did Cæsarean section and saved mother and child.

(3) Case seen last December. The woman, 40 years old, was a sufferer from bronchitis for more than a year and had over an eighth of albumin in urine. Called late at night; I found a complete placenta previa. While taking ether the patient became much cyanosed and a Cæsarean section was performed practically under primary anesthesia. The woman's condition was such that the operation had to be much hurried to get through with her still alive. The hemorrhage from uterine incision and placental site was very slight. She did poorly, and two days later I was forced to open the abdomen, and found a complete stoppage of the intestine. There were adhesions of the omentum to the abdominal incision and to the incision in the uterus. She died on the fourth day. The child is still alive.

(4) This case was seen last February. The woman, pregnant for the thirteenth time, had had one severe hemorrhage. The edge of the placenta could be made out easily. The family were insistent upon an operation to save the child, but as I could not make out a fetal heart, and not believing section necessary in most cases of incomplete previa, I refused to operate and punctured the membranes. Natural delivery of a dead child followed in about 40 minutes.

The death of my second case may fairly be laid to faulty technique incident to hurried work on account of the condition of the patient; but in both cases the result aimed at — the saving of the child — was accomplished.

In my paper read some months ago I advocated Cæsarean section, but only for selected cases, in which ordinary methods of delivery must be diffi-

cult and be attended by high maternal and fetal mortality.

I believe in these indications for Cæsarean section for placenta previa:

(1) When it is complete. It should not be done for incomplete, except

(2) When malpositions are present (24% of the cases of placenta previa are attended by malpositions); and

(3) In cases where previous treatment has been operative, showing a probable relative disproportion between child and pelvis. Williams and Dorland have shown that in contracted pelvis the greatest death-rate is not obtained in the major degrees of contraction, but in cases of disproportion. Given, then, in a case complicated by placenta previa a history of operative delivery, Cæsarean section should be done.

(4) In incomplete placenta previa with prolapsed funis. While with version the mortality is fair as regards the mother, it is anywhere from 80 to 95% as regards the child. I have here some letters I have received from physicians. Take this one, for instance: My friend reports 6 cases, losing 100% of the children and 33½% of the mothers. All the men who have written to me tell about the same story.

Dr. Dudley, quoted by Dr. Higgins, while not having done Cæsarean section for this condition, bases his argument for Cæsarean section upon 9 cases of incomplete previa treated by version. All the mothers lived, but only 3 children survived. Dr. Gillette of Toledo, Ohio, has had another case of successful operation as regards both mother and child, which he will soon report at length. He was obliged to remove the uterus to control the post-partum hemorrhage.

The question of the removal of the placenta in these cases is an important one. There is great danger of hemorrhage if it be removed before the uterus has had time to contract and retract. I see no reason why the sinuses, either high or low, will not close if the placenta be left undisturbed until the normal amount of contraction and retraction takes place. I think no person, however, should attempt a Cæsarean section, for this or any other condition, who is not competent to do a hysterectomy. In addition to the indications already mentioned, I would surely do Cæsarean section for cases of previa in primipara, when signs of fetal or maternal exhaustion are evident, and in all cases when the condition of rigid os is present.

DR. CHARLES M. GREEN: I confess that I am one of those not yet convinced that Cæsarean section is the elective operation in cases of placenta previa. I would like briefly to consider Dr. Donoghue's indications in favor of delivery by section.

(1) As to the rigid os in primipara with placenta previa. I can only say that I have never seen a case of placenta previa in a primipara, in which the os uteri was rigid. Prof. William L. Richardson tells me that his experience is the

same. I do not say that the condition never exists, but I have never seen it.

(2) As to displacements and malpositions of the child. It is usual in placenta previa for the child to be displaced from its normal, longitudinal position; and the more central the implantation of the placenta, the greater the fetal displacement, since the lower segment, the normal place for the fetal head, is more or less occupied by the placenta. Oblique or transverse positions of the child, however, are not indications for Cæsarean section, in essentially normal pelvis; some form of version would be the elective procedure in such cases.

(3) As to relative disproportion. In cases of relative disproportion between passenger and passage, I recognize an indication for Cæsarean section, when the disproportion forbids successful delivery by minor operation. If placenta previa complicates a case of relative disproportion, the indication for section lies in the disproportion, and not in the complication.

The fate of the child is very uncertain under any form of treatment for placenta previa: it may be lost by asphyxia, if a large portion of the placenta is separated; by hemorrhage, if the placenta is torn in operating; or by both causes combined. In many cases, seen late or badly handled, the child is dead or in an extremely enfeebled condition before delivery is attempted, and would not be saved by whatever form of operation. In cases seen early, when the child is found in good condition, it runs no special risk in skilful delivery by podalic version, especially if care is taken not to tear the placenta or bore through it, when central; in central previa, it is wiser to pass the hand up the uterine side where there is least attachment, and then to rupture the membranes and extract promptly; the cervix affords little or no resistance to speedy delivery, especially in marginal or central attachment, where the tissues are soft and yield readily.

As to the mother, if she is in good condition when seen, there is small risk to life in skilful delivery by version and manual extraction; the subsequent danger from post-partum bleeding is the same whether she is delivered by version or by Cæsarean section. If the woman is enfeebled by hemorrhage when seen, she is in no condition to withstand the shock of abdominal section; and if it should seem best to deliver immediately, version is much quicker than the more speedy Cæsarean delivery, since an emergency abdominal section requires some time for preparation. Moreover, when the woman is in very poor condition and perhaps still bleeding, the blood loss may be held in check by a firm gauze vaginal packing, and time thus gained for stimulation and reaction to take place, and put her into a condition to stand a short delivery by version. After delivery, whether by version or by section, there is risk of hemorrhage, owing to the fact that the lower segment does not retract as well as the part above the contraction ring. But this risk is in no way minimized by Cæsarean section. After

delivery by version, if bleeding had ceased, I would not hasten to remove the placenta, but would, in the absence of hemorrhage, give time for uterine retraction and for thrombosis in the lower segment. After the extrusion or removal of the placenta, I would pack the uterus and vagina from the fundus to the vaginal introitus, and I would remain with the patient until I was sure there was no leakage. I would not care to pack firmly a uterus that had been sutured after section.

It is not my wish to oppose progress; but I am not convinced that Cæsarean section for placenta previa is progress. For successful results the section requires not alone a good technique, but a patient in good condition. A woman with placenta previa, if in good condition, can be safely delivered by the normal passage, as a rule; if in poor condition, she is ill prepared to withstand the peritoneal shock. In either case the fetal result is doubtful, and when doubtful should play no part in influencing the choice of operation as against the chances of maternal life.

DR. W. E. BOARDMAN: The subject is of course today, as it has been for the last 150 years, one of great interest, and it is surprising that in 125 of those years so little progress should have been made. Rigby, the first to describe the condition, got as good results as anybody during the century that followed him — about one death in three. His operation was turning and delivery. Probably the faulty and too hurried method by which this was done may have been responsible for many deaths. No change was made until the time of Simpson, who advocated removal of the placenta, disregarding the child absolutely. It has remained for our day for a better line of practice to be followed, that is, manual dilatation. Following this method, Hofmeier twenty years ago reduced the maternal mortality practically to nothing, but he, too, disregarded the child, losing some 70%, so that no real gain was made. In these days of aseptic surgery I had looked with hope to Cæsarean section as the ideal and proper method of treating placenta previa. I have had no personal experiences with it, but it does seem reasonable. The reader speaks of the condition of the child when delivered by Cæsarean section as differing from that of a child delivered by other means. There seems no reason why this should be, and I should be apt to regard it as an accident that the children he saw happened to be so.

The improved Cæsarean section should reduce the mortality of both mothers and children. The point the last speaker made about the placenta is an important one. Most operators, in their hurry, have removed the placenta too rapidly, and many of the deaths have been practically from post-partum hemorrhage. At the same time the condition of the patient has to be taken into account. This, however, comes in only in desperate cases, and it comes in such cases just the same when you are considering delivery by other means. The interest of the child is now more strongly considered by the profession than ever before. It is



deplorable to read the literature of the past and see how absolutely the children have been disregarded.

DR. J. B. SWIFT: My experience with placenta previa has fortunately been very small and I have not done Cæsarean section for this indication, but the operation appeals to me as the proper one to be done when it can be done. I think I could control hemorrhage better by going through the abdomen than I could by starting a procedure of doubtful effect and consequences. The only case I have seen of complete placenta previa was treated with packing and version. Both mother and child were lost. I have decided in another such case to do Cæsarean section.

DR. C. E. STEDMAN: I am confident that if the statistics from private practice were collected, the fatality as regards both mother and child would be simply appalling. I remember a case reported some time ago at the Dorchester Medical Club that was saved by the intra-uterine injection of hot water.

DR. F. B. HARRINGTON: The question is of great interest to me as a surgeon. The statistics of Dr. Higgins would seem a perfectly convincing argument for the adoption of the conservative method, were it not that unfortunately there is not any statement as to what proportion of his cases were central, consequently they cannot be used. We cannot judge a new operation by its first results. Take, for instance, Dr. Homans' first five ovariectomies—all fatal, as he frequently tells. The question comes up, too, of what would have been the result in Dr. Higgins' fatal cases had Cæsarean section been performed. He says they would not have stood an abdominal operation, yet we all know how cases of extra-uterine pregnancy sometimes pull up when apparently hopeless as soon as further loss of blood is stopped.

DR. G. J. ENGELMANN: This reminds me of the first operations for the removal of the appendages. Shortly before Battey's first successful case, Hegar had a case which he lost and did not report for fear of legal complications, and had not the report of Battey's successful case appeared, the knowledge of Hegar's case would never have leaked out.

DR. H. T. SWAIN: The point as to the possibility of controlling a post-partum hemorrhage after a Cæsarean section seems worth considering. There is great danger of it, and to control such a hemorrhage by merely packing the vagina, would be difficult, yet it is not desirable to pack a uterus after a Cæsarean section.

DR. J. G. BLAKE: This operation has appealed to me very strongly since I have seen the ease with which Cæsarean section has been performed. The added possibility of saving children is of vast importance. I do not think that there is much to be learned as to the old method of treatment. I am favorably disposed towards Cæsarean section, and should hope for better results with more experience, and at all events to a much less infant mortality.

DR. WORCESTER: In answer to Dr. Swain's point, I am quite sure there is no real danger of post-partum hemorrhage after Cæsarean section, if due attention be paid to Dr. Donoghue's precaution of leaving the placenta to separate practically of itself. If, after the uterus be emptied, time be allowed for contraction and retraction, the placenta will be detached as naturally if it be in the lower segment as if it were in the upper. As Dr. Harrington points out, patients will recover from an extreme loss of blood if only you prevent any further loss. Death in placenta previa managed in the conservative way is apt to come from the loss of blood after delivery. Hemorrhage cannot always be controlled by packing the uterus. I have had a woman bleed to death while I was actually stuffing the gauze into the uterus, which was shapeless, soft, and reaching to the ensiform.

We advocates of radical treatment rest our case on the facts that we do not thereby occasion further loss of blood by a premature and unnatural detachment of the placenta, that in the operation we advise the uterine arteries are under control, and, finally, that by the Cæsarean delivery the child has its best possible chance of living.

DR. F. A. HIGGINS: As Dr. Worcester has said, a comparison of three cases with seventy-five is unsatisfactory, and is not to be considered in any sense the final word, although at present it is the only evidence that we have. In my paper I have not intended to place so much importance on the relative mortality of the different procedures in these two sets of cases as upon the high mortality which I feel sure will follow the indiscriminate performance of Cæsarean section for placenta previa and the unfavorableness of most cases for the operation. In regard to hemorrhage during delivery by version or the Braxton-Hicks method, the same gentleman would have us infer that the bleeding continues from the cervical vessels from the time of beginning manual dilatation till delivery is accomplished and the cervix closes down again. As a matter of fact, this is not so, for, in the first place, the hand in the vagina acts as a very good plug, largely helping to control the hemorrhage, and, in the second place, as the cervix is dilated its sinuses are stretched out and become practically obliterated after a little so that there is no more hemorrhage from them. It does not seem to me that tearing of the cervix is so very common, otherwise we should see more cases in which suture of the cervix was necessary to control the hemorrhage from it. This, so far as I know, has never been done or required in placenta previa. Moreover, in the Braxton-Hicks method, which is quite universally regarded as the safest method of treatment, the cervix is only dilated manually to about the size of a silver dollar to admit two fingers to bring down a foot. Of course, if the previa is complete it may be necessary to go through the centre of the placenta; but this is an easy matter and does not cause any loss of blood to the mother, as it is a well-known

fact that the mother does not bleed through the placenta or the cord.

As to the difficulty of packing after delivery, Dr. Green has fully covered that point, and I would only add that it is absolutely necessary to control the fundus from above, otherwise it will expand up to the diaphragm, but with one hand on the fundus and the other pressing in the gauze from below, any desired amount of pressure can be obtained and any hemorrhage controlled.

Some one has mentioned previous operative delivery at term in a patient with placenta previa as an indication for Cæsarean section. This would not hold, because operative delivery is never difficult in placenta previa, and so many of the babies are small and premature. As to prolapsed cord being an indication, it is an impossible condition in complete previa, and in the others the child would probably be dead in nine cases out of ten from pressure on the cord before one could prepare for an abdominal operation.

In answer to Dr. Harrington's question, about 33% of these cases were complete placenta previa. As to his remark that Cæsarean section results may be compared with early abdominal operations when the mortality was so high, I would say that the operation of Cæsarean section is as much perfected now as any abdominal operation and is simple and safe enough when properly performed in suitable cases.

I have been rather surprised that more gentlemen have not considered the large proportion of premature births in placenta previa and the high mortality of the ordinary premature baby, when advocating Cæsarean section.

### Recent Literature.

*Essentials of Obstetrics.* By CHARLES JEWETT, A.M., M.D., Sc.D., Professor of Obstetrics and Gynecology in the Long Island College Hospital and Obstetrician and Gynecologist to the Hospital, assisted by HAROLD F. JEWETT, M.D. Second edition, pp. 386, with 80 woodcuts and 5 colored plates. New York and Philadelphia: Lea Bros. & Co. 1901.

This small book on obstetrics, just appearing in its second edition, makes no pretense of being a complete textbook, but, as the author states in the preface, its object is to place the essential facts and principles of obstetrics within easy grasp of the student as an introduction to the more elaborate treatise and as a guide in following the didactic and practical teaching of the college course.

Necessarily, from a book of this size, many of the essential features of a reliable treatise or textbook must be omitted, and in this feature lies the chief reason for criticism of this work. Many books of this kind, however, have been published, and obstetrics seems to be the particular branch of medicine in which they find a fer-

tile field. It is a matter of doubt, however, if abbreviated books should ever be recommended to the use of medical students, as the knowledge of the average student is quite apt to be superficial enough without encouragement in this direction.

The text is clear and conservative, and all the material which it contains is of value; moreover, it is systematically arranged and of easy access.

*Obstetric Clinic.* By DENSLOW LEWIS, M.D., Ph.C., Professor of Gynecology in the Chicago Polyclinic, President of the Staff of the Cook County Hospital, Chicago, etc. Octavo, 640 pages. Chicago: E. H. Colgrove. 1901.

This book is a compilation from the stenographic reports of 39 clinical lectures on subjects in practical obstetrics in connection with clinical material, delivered to students and practitioners in the Cook County Hospital, Chicago. Several chapters have also been devoted to the consideration of certain allied subjects, such as venereal diseases and their relation to pregnancy and the puerperal state, the restriction of prostitution, criminal abortion, infanticide and illegitimate pregnancy.

No effort has been made at a systematic arrangement of the material in the book along the lines necessary for a reference or textbook, and it was evidently not the intention of the author to have it such.

The text is essentially that of a modern lecture delivered in connection with the exhibition of patients, and the lectures as such are interesting to read and also instructive. A book of this kind has really but little intrinsic value and does not interest extensively either the specialist or the general profession. To those, however, who have been undergraduate or post-graduate students under the instruction of the author, and have been privileged as such to listen to the delivery of the lectures, the volume will undoubtedly be of much value, and the lectures will be more highly prized because of possession in a more permanent form.

*Lessons on Massage.* By MARGARET D. PALMER, Masseuse and Manager of the Massage Department of the London Hospital. New York: William Wood & Co. 1901.

This is a small volume of 234 pages, containing a glossary and good index. The book is intended to serve as a guide to those who intend taking up the work of massage. In addition to the technical portion which particularly relates to the subject of massage, introductory chapters on elementary anatomy and physiology are introduced for the student's guidance. The book is systematically arranged, well bound and printed, and should find a place of usefulness among those of its class.

It is stated, according to the annual report of the medical officer of London, Eng., that the average length of life is increasing in that city.



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## THE PRODUCTION OF VACCINE LYMPH.

PREVIOUS to the general introduction of bovine vaccination, in the latter half of the 19th century, the methods of producing lymph for vaccination were very crude, and were insufficient in character to meet the demand which often arose in consequence of the repeated prevalence of smallpox. During the first half of the century smallpox at no time prevailed with as great severity as during the 18th century. The methods of obtaining lymph were chiefly limited to its collection upon quills or other convenient vehicles from the arms of healthy infants. The first vaccine lymph received in America by Dr. Waterhouse at the close of the 18th century, was sent upon threads which had been moistened, or saturated, with lymph, and similar methods were employed by Dr. Waterhouse in transmitting a supply to President Jefferson, who by this means became the principal agent in introducing vaccination into the Southern States.<sup>1</sup>

After the establishment of district medical societies in Massachusetts, about the middle of the century, physicians often distributed such scanty supplies of lymph to each other as they had been able to collect. Two methods of use were then commonly employed: one by means of bits of quill, sharpened at the point, and charged from a vesicle upon the arm of a child upon the seventh or eighth day after its vaccination, and, secondly, by means of the crusts or scabs, which were usually removed from the arm about 17 to 20 days after vaccination. The latter method was open to the objection of liability to contamination by rupture of the vesicle.

To facilitate the distribution of vaccine material, an Act of Congress was passed as early as

<sup>1</sup> "I have this day impregnated some thread and half a dozen toothpicks with matter."—Letter of President Jefferson to Dr. Waterhouse, dated Aug. 21, 1801.

1813 or 1814, the intent of which is set forth in the following advertisement:<sup>2</sup>

The subscriber, having been appointed by the President of the United States agent for vaccination, hereby gives notice that genuine vaccine matter will be furnished to any physician or other citizen of the United States who may apply for it. A fee of \$5 must be forwarded for the same. . . . All letters to and from the undersigned on this subject, and not over one-half ounce in weight, are carried by mail free of postage, in conformity with the late Act of Congress to encourage vaccination.

[Signed]

JAMES SMITH,

United States Agent for Vaccination,  
Baltimore, Md.

Sept. 6, 1814.

In the rural districts vaccine material was not easily obtained, and does not appear to have been made a commercial article of sale for many years, to a great extent. In the large cities, however, there were a few depositories of lymph supply. The first advertisement in this Journal appears in vol. xii, p. 308, June 17, 1835, wherein the editor offers ten vaccine quills for a dollar, "positively genuine and recently taken."

Dr. Seaton, in his excellent handbook on vaccination, published about 1867, in the chapter on the maintenance of the lymph supply, alludes to some of the difficulties attending its uninterrupted continuance. It was chiefly for this reason that the national vaccine establishment of England was instituted, to encourage vaccination and to keep a constant supply of lymph on hand. A similar succession of humanized lymph was continued in Providence, R. I., until within a few years.

At the beginning of the Civil War, in 1861, smallpox was quite prevalent, and there was much difficulty in obtaining sufficient humanized lymph for vaccinating the soldiers. This was sent mostly in the form of crusts of uncertain age and source, obtained in northern cities.<sup>3</sup> A considerable quantity of vaccine from the heifer was resorted to in the last year of the war, as stated by Surgeon Milhau in the "Medical and Surgical History of the War," vol. iii, medical volume, p. 634.

With the rapid growth of the country and the dense aggregation of the population into cities, which had taken place at the time of the widespread epidemic of smallpox in 1872 and 1873, there came a sudden demand for vaccine material, far beyond the possibilities of the limited supply which could be casually obtained from the arms of healthy infants.

Dr. H. A. Martin of Roxbury had already begun the vaccination of a series of heifers, and was very soon followed by many others in different parts of the country, notably by Dr. F. P. Foster

<sup>2</sup> From the Concord (N. H.) Gazette of Sept. 10, 1814.

<sup>3</sup> At a recent meeting of the Boston Society for Medical Improvement Dr. Adams of Framingham states that at one time during the Civil War he was compelled to make a single vaccine crust and half of another one answer for the vaccination of 700 soldiers.

of New York City, and by Dr. Griffin of Fond du Lac, Wis. The advantages of having young and healthy animals under control, each of whom will yield sufficient vaccine material for the vaccination of several thousand people, is apparent when compared with the uncertain mode of depending upon the appearance of a mother with the vaccinated infant at the precise day for taking the lymph, and also frequently with a decided unwillingness to allow the child's arm to be disturbed by the irritation consequent upon taking a large supply from a more or less scanty vesicle.

With the coming of the next epidemic of smallpox of a more limited character in 1880-1881, a demand for vaccine material again arose. Bacteriological investigation was in its infancy, and the gospel of cleanliness began to be preached everywhere; the shortcomings of the various establishments for the production of vaccine lymph were a subject of discussion, not only in the medical journals, but in the daily press. One needs only to consult the "Fourth Annual Report of the State Board of Health of Connecticut," or the third volume of the "Bulletins of the National Board of Health" (1881), to learn that there was much room for improvement, in matters of cleanliness at least.

The science of bacteriology has accomplished very much toward perfecting the methods of vaccine production, and has shown the necessity of absolute cleanliness above all things in this important department of sanitary work.

The principle objection to the production of vaccine by private producers is the damaging effect of commercial competition. The liability to deterioration in consequence of sharp rivalry, and the sudden and spasmodic demand which often occurs coincident with smallpox epidemics, occasionally leads producers to unscrupulous methods, not only in the matter of production, but also of advertising their wares. For example, a recent advertisement states that "glycerinated vaccine is composed of pus, blood and broken-down vaccine crusts, soaked and largely diluted with glycerine and water." The statement is false and misleading, since glycerinated lymph is recommended and used by the highest modern authorities for good and sufficient reasons, as preferable to any other form of lymph.

Another producer in an advertising circular denounces certain neighboring producers for using what he erroneously terms the "pus-layer" for the collection of vaccine material, entirely ignoring the fact that the highest modern authorities, after thorough investigation, recommend the practice which he condemns.

With reference to the best methods of producing and distributing vaccine lymph in foreign

countries, a great change has taken place within the past 25 years, since such experts as Cory of London, Chambon and Ménard of Paris, Haccius of Geneva, and the Imperial Board of Health of Germany have taken up the subject and devoted their time and strength to this important work.

In France, where vaccination is mainly voluntary, but not sufficiently carried out to prevent the occurrence of frequent epidemics of smallpox, the system of vaccine culture has been conducted for many years under the charge of voluntary organizations. Those in Paris are the Institute Vaccine Animale and the Académie de Médecine. Glycerinated lymph is here employed almost exclusively, when required for storage, except in those cases where, especially in times of epidemic, the animal is driven from house to house in a specially constructed wagon or van, and large numbers are then vaccinated with fresh lymph direct from the animal. Messrs. Chambon and Ménard attach much importance to this practice. They say that, "Under the immediate influence of existing smallpox, large numbers are willingly submitted, both to primary and secondary vaccination, who would otherwise escape, and they are of opinion that certain classes who might object to be vaccinated with lymph from an unknown source, find all their objections on this score removed when they actually see the calf which serves as a vaccinifer."<sup>4</sup>

Lymph which the English Commission of 1897 took home to England was tried upon 96 children, five insertions each, and in every insertion was successful (480 insertions).

These calves, after the lymph is collected, are sent to the abattoir and slaughtered under the personal supervision of a medical man, whose report is made before the lymph is distributed. If disease should be found, the lymph is destroyed. This practice appears to have been adopted rather for the purpose of satisfying public sentiment than otherwise, since the occurrence of disease in calves at the age usually adopted for vaccination is very rare indeed. We learn that a similar practice is now adopted at one or more American establishments.

At Brussels the production, storage and distribution of animal vaccine are essentially the same as at Paris, and are carried out at the Ecole Vétérinaire under the supervision of Professor Degive. Each calf is first tested with 1½ cc. of tuberculin, which seems almost a needless procedure, considering the extreme rarity of tuberculosis in calves, as well as the improbability of its transmission, even when existing in an interior

<sup>4</sup> From Report of an Inspection by Drs. Thorne and Copeman as to vaccination arrangements in foreign countries with special reference to the preparation and storage of glycerinated calf lymph; 26th Annual Report of Medical Officer of the Local Government Board, London, 1897.

organ. Dr. Warlomont of Brussels was one of the earliest to introduce bovine vaccination, and established a Belgian vaccinal institute under government supervision in February, 1865. His work on animal vaccination is one of the first which was published on this subject.

The most complete national system of vaccine production is that of Germany, where the Imperial Board of Health exercises supervision over this work, and issues an annual report upon it.<sup>6</sup> These reports give all the facts relative to the production of animal lymph in each of the 22 principal cities of the German Empire. The items presented are the salaries of officials, the expense of purchasing calves and keeping and feeding them, the preparation, collection and distribution of the lymph and all other essential particulars of the work. The quantity of the lymph obtained is stated, and the amount issued monthly. It appears that by far the largest amount was obtained in the month of May, 1900.

In Berlin, in 1900, 51 calves were employed during the year; in Königsberg, 121; in Cologne, 83; in Munich, 81; in Dresden, 115, etc. At Berlin all lymph is now tested bacteriologically by means of plate cultures before it is distributed. This is done in consequence of the recommendation of a scientific committee, of which Professor Koch was a member, and which recently convened at Berlin to inquire into the whole subject of the collection, purification and preservation of vaccine lymph. In the three months of May, June and July sufficient lymph is provided for use during the whole year throughout one of the largest of the eight districts into which the kingdom of Prussia is divided for vaccination purposes.

After the collection of the lymph at Berlin the calves are sold to the Jewish rabbi to be slaughtered for food. A larger price is given for them than usual, owing to the fact that they are in fine condition, as the result of good feeding while at the station.

For many years, in America, succeeding the introduction of animal vaccination, a superstitious reverence for the so-called Beaugency stock appears to have prevailed, and an unbroken pedigree from this historic heifer was considered a *sine qua non* of vaccinal purity.<sup>6</sup> That this curious fetish of the 19th century has gained no standing among German authorities is shown by the fact that humanized lymph from healthy infants is preferred to any other for the vaccination of calves for a new supply. For example, in

1900, out of 81 calves vaccinated, 53 were inoculated with humanized lymph from healthy children.

In Switzerland, the Institut Vaccinal Suisse is at Geneva, under the charge of Prof. Charles Haccius, who founded the establishment in 1882, and distributed free of cost all the lymph required in the various cantons. Four weeks are allowed to elapse after the collection of the lymph and its preparation as a glycerinated emulsion before it is sent out for use.

In Japan bovine lymph has been used since 1874. For a time the production was in the hands of private parties, and the last "Report of the Sanitary Bureau" calls attention to the bad quality of the material produced and the necessity of government control. The cabinet decided to place the production in charge of the government in 1895. The average number of persons vaccinated in the past 10 years was 3,938,038 per year, and as the population is about 42,000,000, the Japanese should now be an unusually well-vaccinated nation.

In the city of New York animal vaccination has been practiced under the charge of the city Board of Health for some years with marked success, and the plan of producing the supply for any state or large city under the charge of experts in this line of work is gaining ground, as a better means of encouraging vaccination, and consequently of diminishing the prevalence as well as the mortality from smallpox.

Vaccination with bovine lymph has now almost completely taken the place of arm-to-arm vaccination in most countries of the world. In Germany, since its introduction within the past 30 years, it had so rapidly increased that in 1887 the proportion of vaccinations with calf lymph amounted to fully 90% of the total, while in 1898 this number had risen to 99.9%, the whole number of vaccinations performed in that year with calf lymph being 2,680,182, while those with humanized lymph were only 448.<sup>7</sup>

The failure to vaccinate successfully in primary cases is due almost invariably to faults in the production, storage or distribution of lymph, and these are susceptible of remedy. In proof of this, the medical officer of the local Government Board of England says in his report in 1896 and 1897 (p. 8), when comparing the success of the board's officials with that of others: "While 3,032 medical certificates of insusceptibility were granted in different parts of England and Wales, . . . the board now has record of 101,487 consecutive primary vaccinations performed by their own officers, among which no single instance of insusceptibility has been found."

<sup>6</sup> Die Thätigkeit der im Deutsch. Reich errichteten staatlichen Anstalten zur Gewinnung, v. Thierlymphe während des Jahres, 1900; Berlin, 1901.

<sup>7</sup> A firm in Pennsylvania recently advertised lymph from heifers vaccinated from the "only spontaneous case of cowpox in America," a statement which any dairyman of large experience and careful observation knows to be incorrect. The term "spontaneous" as applied to infectious diseases is also questionable. See Wood's Reference Handbook, vii, 539.

<sup>7</sup> Die Ergebnisse des Impfgeschäftes im Deutsch. Reich f. das Jahr., 1898; Berlin, 1900.

Much of the so-called insusceptibility is due to the method of distribution and the consequent age of the lymph produced. The physician in general practice, or possibly the agent of a local board of health, obtains his supply of vaccine from a local apothecary, who in turn gets his supply of a wholesale druggist, and he in turn receives it from an agent of some private producer of vaccine. The package of lymph in question is either stamped with a date which represents, not the date of its production, but that of its sale to the final customer; or possibly it is stamped with a date "Not to be used later than Dec. 25." The physician uses it on Dec. 10 or 20, and wonders why it fails "to take." He considers it as a possible case of "insusceptibility," not recognizing the fact that the package in question may have been six months old, or may have been subjected to many variable changes of temperature upon the shelves or in the drawers of a local apothecary shop, or in the pockets of a traveling agent.

Far different from this was the method witnessed some years since by the writer at the vaccine station in London conducted by Dr. Cory, where scores of infants were daily vaccinated from the fresh lymph obtained from the calves kept at the same station. It cannot be wondered at that under this system Dr. Cory had at that time himself vaccinated an unbroken succession of over 30,000 infants without a failure.

Such success as this might be secured under a careful system of government control.

#### MEDICAL NOTES.

**CANCER IN GERMANY.**—Through researches recently made under the auspices of the German Imperial Health Department it appears that in Germany, as in other European countries, there has been an increase in the prevalence of cancer in recent years.

**SMALLPOX IN LONDON, ENG.**—Late returns show a diminution in the number of cases of smallpox in London. On Dec. 7, 8, 9, 10 and 11, the number of cases reported was, respectively, 19, 11, 18, 9 and 15.

**DECREASE OF SMALLPOX IN PHILADELPHIA.**—Health reports from Philadelphia show a decided decrease in the number of cases of smallpox.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Jan. 1, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 62, scarlatina 25, measles 107, typhoid fever 6, smallpox 34.

**VACCINATION.**—The Boston Board of Health has passed the following order: *Whereas*, smallpox has been prevalent to some extent in the city of Boston, and still continues to exist, although the number of cases has much decreased owing largely to the voluntary vaccination of the great majority of the inhabitants, and, *Whereas*, it is necessary for the speedy extirpation of the disease, that all persons not protected by vaccination or revaccination should be vaccinated, and, *Whereas*, in the opinion of this board, the public health and safety require the vaccination or revaccination of all the inhabitants of Boston, *Therefore*, be it ordered that all the inhabitants of this city who have not been successfully vaccinated since Jan. 1, 1897, be vaccinated or revaccinated forthwith.

**A CENTENARIAN.**—Maine's oldest woman, Mrs. Eliza Pinkham of Milbridge, has died at the age of 106 years, lacking 2 weeks. She was born Jan. 7, 1796, nearly 4 years before Washington's death and almost a quarter of a century before the Province of Maine was set apart from Massachusetts. She had but one surviving son, who, though blind, is known as a designer and boat builder of distinction.

**A POSSIBLE GIFT TO THE BOSTON MEDICAL LIBRARY.**—We desire to correct our statement made in last week's issue that the Boston Medical Library had received \$50,000 from the Billings' estate. The circumstances do not warrant so positive a statement. The actual fact is, that the library may receive this amount from this source in the not distant future.

**REPORT OF INSPECTOR OF ANIMALS, CAMBRIDGE, MASS.**—According to the annual report of the inspector of animals of Cambridge, Mass., the cattle of the city are free from tuberculosis. Glanders among horses has been less frequent than in previous years.

**OUT-PATIENT DEPARTMENT, BOSTON CITY HOSPITAL.**—It is announced at the City Hospital that the Out-Patient Department of that institution, which has been closed several weeks on account of smallpox in the city, has been reopened.

**BEQUESTS TO HOSPITALS.**—By the will of Mrs. Susan Warren bequests are made as follows: \$20,000 to the Massachusetts General Hospital; \$2,000 to the Boston Home for Incurables.

#### NEW YORK.

**COLLEGE GYMNASIUM DIRECTORS.**—The annual meeting of the Society of College Gymnasium Directors was held at Columbia University on Dec. 27 and 28. Dr. R. Tait McKenzie, of McGill University, presiding. Reports from a number of committees were received and among

the papers read were the following: The Physical Supervision of College Men, by Dr. C. P. Linhart, of Ohio State University; the Ethics of Physical Training, by Dr. James A. Babbitt, of Haverford College; Some Experiments with a New Muscle Bed, by Dr. William G. Anderson, of Yale; The Strength Test as an Argument, by Dr. Watson L. Savage, of Columbia. Dr. Dudley A. Sargent of Harvard was reappointed chairman of the Committee on Strength Tests and Supervision of Instruments.

**THE POST-GRADUATE MEDICAL SCHOOL.**—The seventeenth annual report of the New York Post-Graduate Medical School and Hospital shows that more than 600 doctors in medicine attended its courses during the past year, who paid for their tuition the sum of \$39,726. Of this sum only \$3,017 was paid to certain professors for special services in operative courses and in the anatomical rooms and laboratory, and but 13 professors and instructors received any fees for their services.

**DIRECTOR OF NEW YORK PATHOLOGICAL INSTITUTE.**—Dr. Adolf Meyer, of Worcester, Mass., has been appointed by the New York State Lunacy Commission to the directorship of the reorganized Pathological Institute for the Insane. Dr. Meyer's training and attainments admirably fit him for the responsible position to which he has been elected. We have no doubt that the wisdom of the choice will be amply demonstrated in the work of the Institute.

**THE RISKS OF CHRISTMAS TREES.**—Miss Madeline Sammons, a nurse in the Laura Franklin Free Hospital for Children, under the management of the P. E. Sisters of St. Mary, was fatally burned on Dec. 24 while, as Santa Claus, she was distributing presents from a lighted Christmas tree to patients in the hospital.

**GIFT TO NASSAU COUNTY HOSPITAL.**—William C. Whitney has made a Christmas present of \$6,000 to the Nassau County Hospital at Mineola, Long Island. Last year he gave a similar amount to the institution.

**COMMISSIONER OF STREET CLEANING.**—Mayor-elect Low has appointed Dr. John M. Woodbury commissioner of street cleaning.

### Miscellany.

#### THE PHYSIOLOGICAL EFFECTS OF BALLOON ASCENTS.

At a recent meeting of the Paris Academy of Medicine M. Gaule laid before the Academy of

Sciences, as reported in the *Lancet*, the result of some researches which had been undertaken by himself with a view to ascertain whether the results of a balloon ascent were comparable with those obtained at a high altitude on land—for example, at the top of a mountain. The most notable of these is a marked augmentation in the number of red corpuscles. Viaux and sundry observers who followed him have ascertained that at a high altitude there is a great increase in the number of red corpuscles. Thus in the Cordilleras, at a height of 4,000 metres, Viaux found 8,000,000 red corpuscles per cubic millimetre.

M. Gaule wished to see whether in a balloon ascent, where ascension is very rapid and entails no muscular exertion, a similar phenomenon would occur. He made two investigations at heights of 4,200 and 4,700 metres, and found in himself 8,000,000 red corpuscles per cubic millimetre. Further, M. Gaule, at a height of over 4,000 metres, made some blood-films stained after Ehrlich's method with eosin and hematoxylin. He found numerous red corpuscles which showed a nucleus colored blue by hematoxylin. This nucleus was in many instances segmenting, and also groups of three or four corpuscles were seen as if they had undergone subdivisions. Similar preparations made before the ascent showed no such appearances. M. Gaule therefore considers that at high altitudes there is an actual formation of red corpuscles and that this takes place with great rapidity.

At the following meeting, M. Tissot and M. Haillon gave an account of researches on a somewhat analogous subject. On Nov. 21, they undertook some researches at various altitudes into the physics and chemistry of the respiration. Experiments were made at the following heights: 1,350 metres, 2,600 metres, and 4,450 metres in the case of M. Tissot, and at 1,700 metres and 3,500 metres in the case of M. Haillon. The chemical phenomena of the respiration did not vary appreciably at these different altitudes. The respiratory rhythm, however, was greatly modified. Although the total quantity of air entering the lungs was less, the number of respirations was not sensibly altered. It would thus appear that at high altitudes the air is purer and more completely used.

#### LAPAROTOMY FOR PERFORATION IN TYPHOID FEVER.

DR. C. E. BRIGGS of Cleveland, Ohio, reports<sup>1</sup> 6 cases of laparotomy for perforation in typhoid fever, from the surgical clinic of Dr. Dudley P. Allen at the Lakeside Hospital. One case entered the hospital as general peritonitis. In 1 case, no perforation was found, and there was an apparently normal peritoneal cavity.

Of the other 4 cases, in 1 there was a good recovery after operation. In this case the operation

<sup>1</sup> American Journal Medical Sciences, January, 1902, p. 26.

was performed 3 hours after the first appearance of symptoms, and under local anesthesia. The patient was a lad 17 years of age, and his condition very favorable for operation. One of these 4 cases was operated on 8 hours after definite symptoms first appeared, and the other 3 cases 3, 4 and 5 hours respectively.

### Obituary.

#### THOMAS WATERMAN, M.D.

DR. THOMAS WATERMAN died in Boston on Dec. 14, 1901. Had he lived till the 17th of the month he would have been 59 years of age.

He was born in Boston, and was the son of Thomas and Joanna (Towle) Waterman. He attended the public schools of Boston and fitted for college at the Boston Latin School. He entered Harvard in 1860. While in college he was a good student; was fond of athletics and public speaking, and developed a tact for natural history. He sometimes gave lectures on that and kindred subjects, to help pay his expenses. During his whole life he manifested interest in those studies, and had it not been that he felt that he must follow his profession closely for an income, he could have distinguished himself as an investigator and a student. He graduated from college in the class of 1864, and has always kept a cordial intimacy with his classmates.

The summer after his graduation he was in the employment of the United States Sanitary Commission in Virginia. In the fall of that year he commenced the study of medicine under the charge of Prof. Jeffries Wyman, in Cambridge, and attended lectures at the Harvard Medical School during that winter. From May 1, 1867, to May 1, 1868, he was house surgeon at the Massachusetts General Hospital. He received the degree of doctor of medicine in July, 1868. He commenced practice in Boston at once. In March, 1869, he was appointed one of the physicians to the Dearborn Branch of the Boston Dispensary. In August, 1869, he was appointed medical examiner of the North Western Life Insurance Company. In January, 1870, he was elected curator of mammal and comparative anatomy in the Boston Society of Natural History, and on May 18, 1870, he was elected a member of the committee on mammals. In 1871 he was appointed physician to the central office of the Boston Dispensary, and in 1874 he became surgeon to the Dispensary, and held the position for ten years, then declining a reappointment. In 1873 he was appointed instructor in comparative anatomy in Harvard University for the years 1873 and 1874. In 1879 he became assistant in anatomy in the Harvard Medical School and held the office three years. He served as censor and councillor of the Massachusetts Medical Society, and was a member of the Boston Society for Medical Improvement and the Boston Society of Medical Sciences.

He became a Free Mason in 1864, and held many offices of responsibility in that order, reaching the highest and last degree—the thirty-third.

In July, 1881, he was elected an examining physician to the public institutions of the city of Boston, which position he held through the various changes in the departments, till the time of his death, a period of more than 20 years. His entrance upon the duties of this office changed very much the character of his professional life. There were brought under his observation a majority of the insane of Suffolk County who were committed to insane hospitals, and he had many private consultations. In these duties he manifested much patience, deliberation, thoroughness and kindness, and during the last years of his life became well known as an expert in mental disease, whose services were sought for and whose opinion was much respected, not only in Massachusetts, but in neighboring States,

where he took part in several important trials. His honesty, self-possession and carefully weighed testimony made him an excellent witness. At the time of his death he was a member of a commission to examine convicts, supposed to be insane, at the Massachusetts State Prison, the Concord Reformatory and the Prison for Women at Sherborne.

His death occurred after an illness of five days.

Genial and friendly in spirit, he had many friends and no enemies. He was buried from the Old South Church on Dec. 18. The funeral was under the auspices of the Masons. He leaves a widow and two daughters.

#### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DEC. 21, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria and croup.	
New York.	3,487,202	1,238	385	—	15.50	1.13	2.66	3.22	
Chicago.	1,698,575	—	—	—	—	—	—	—	
Philadelphia.	1,293,697	432	95	21.02	14.78	1.15	.46	3.98	
St. Louis.	575,238	—	—	—	—	—	—	—	
Baltimore.	508,967	175	46	19.98	18.27	1.71	1.71	2.85	
Cleveland.	341,768	—	—	—	—	—	—	—	
Buffalo.	342,387	—	—	—	—	—	—	—	
Cincinnati.	325,902	—	—	—	—	—	—	—	
Pittsburg.	321,616	—	—	—	—	—	—	—	
Washington.	278,718	—	—	—	—	—	—	—	
Milwaukee.	245,315	—	—	—	—	—	—	—	
Providence.	175,697	47	11	12.76	19.14	2.12	—	—	
Boston.	560,892	234	59	23.94	17.51	.43	.43	1.28	
Worcester.	118,421	43	12	9.30	18.50	2.32	—	—	
Fall River.	104,863	33	12	18.18	6.06	—	6.06	6.06	
Lowell.	94,909	54	24	16.65	24.05	3.70	—	7.40	
Cambridge.	91,886	20	8	30.00	20.00	—	—	20.00	
Lynn.	68,513	20	5	—	25.00	—	—	—	
Lawrence.	62,559	—	—	—	—	—	—	—	
New Bedford.	62,442	—	—	—	—	—	—	—	
Springfield.	62,050	24	4	8.33	12.50	4.16	—	—	
Somerville.	61,643	12	3	25.00	16.67	8.33	—	—	
Holyoke.	45,712	11	5	27.27	9.09	—	—	—	
Brookton.	40,063	11	2	27.27	—	9.09	—	—	
Haverhill.	37,175	13	2	23.10	23.10	—	—	—	
Salem.	35,956	11	3	—	9.09	—	—	—	
Chelsea.	34,072	15	—	13.33	—	6.66	—	—	
Malden.	33,664	10	2	10.00	—	—	—	—	
Newton.	33,547	15	2	20.00	6.67	6.67	—	—	
Fitchburg.	31,531	—	—	—	—	—	—	—	
Taunton.	31,036	11	—	27.27	18.18	—	—	—	
Gloucester.	26,121	5	2	—	—	—	—	—	
Everett.	24,336	6	1	—	16.67	—	—	—	
North Adams.	24,200	7	3	—	—	—	—	—	
Quincy.	23,899	4	1	25.00	25.00	—	—	—	
Waltham.	23,481	7	1	42.90	14.30	—	—	—	
Pittsfield.	21,766	3	1	33.33	—	33.33	—	—	
Brookline.	19,935	7	1	—	14.30	—	—	—	
Chicopee.	19,167	5	4	20.00	20.00	—	20.00	—	
Medford.	18,244	—	—	—	—	—	—	—	
Newburyport.	14,447	7	2	14.30	14.30	—	—	—	
Melrose.	12,962	1	—	—	—	—	—	—	

Deaths reported 2,514; under five years of age, 699; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 420, acute lung diseases 395, consumption 159, scarlet fever 23, erysipelas 9, typhoid fever 33, whooping cough 10, cerebrospinal meningitis 8, smallpox 23, measles 27, diarrheal diseases 42.

From whooping cough, New York 6, Philadelphia 3, Boston 1. From cerebrospinal meningitis, New York 3, Baltimore 1, Cambridge, Holyoke, Weymouth and Southbridge 1 each. From scarlet fever, New York 14, Philadelphia 5, Baltimore 1, Boston, Holyoke and Waltham 1 each. From erysipelas, New York 3, Philadelphia 2, Baltimore 1, Worcester, Haverhill and Waltham 1 each. From measles, New York 22, Philadelphia 1, Boston 3, Lowell 1. From smallpox, New York 1, Philadelphia 10, Boston 12.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Dec. 7, the death-rate was 19.5. Deaths reported 4,292; acute diseases of the respiratory organs (London) 470, whooping cough 64, diphtheria 70, measles 135, smallpox 16, scarlet fever 50.

The death-rate ranged from 13.6 in Croydon to 29.3 in Norwich; Birkenhead 18.3, Birmingham 21.7, Blackburn

28.6, Bolton 19.5, Bradford 15.3, Brighton 19.4, Bristol 16.0, Burnley 19.8, Cardiff 19.6, Derby 14.3, Huddersfield 15.4, Hull 17.7, Leeds 19.6, Leicester 15.5, Liverpool 22.5, London, 19.5, Manchester 23.0, Newcastle-on-Tyne 17.7, Nottingham 20.2, Oldham 23.9, Plymouth 17.9, Portsmouth 14.0, Preston 18.0, Salford 21.7, Sheffield 19.5, Swansea 20.9, West Ham 19.0, Wolverhampton 19.3.

### METEOROLOGICAL RECORD

For the week ending Dec. 21, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches
	Daily mean	Daily mean	Maximum	Minimum	8.00 A.M.	8.00 P.M.	Daily mean	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.
S...15	29.72	42	62	21	100	65	82	S	N W	24	18	R. C.	1.28
M...16	30.02	16	21	12	72	44	58	N W	N W	24	18	C. C.	
T...17	30.02	13	16	10	53	89	71	N W	N	19	19	O. C.	.04
W...18	30.07	18	24	13	81	73	77	N	N W	15	7	O. C.	.09
T...19	30.24	19	25	13	90	90	90	N W	W	6	9	O. C.	T.
F...20	30.30	19	24	14	82	66	74	W	N	7	10	O. C.	
S...21	30.28	18	24	13	82	65	74	N	N	12	13	O. C.	
Mean for week	30.09		28	14			75						1.36

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
☞ Mean for week.

### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING DEC. 21, 1901.

JOHN B. BUCHANAN, assistant surgeon. Appointed from Nov. 23, 1901.  
R. C. PERSONS, medical director. Commissioned from Nov. 3, 1901.  
E. H. GREEN, medical inspector. Commissioned from Nov. 3, 1901.  
L. G. HENEBERGER, medical inspector. Commissioned from Oct. 29, 1901.  
H. H. HAAS, passed assistant surgeon. Commissioned from Dec. 28, 1901.  
C. A. CRAWFORD, passed assistant surgeon. Commissioned from June 1, 1901.  
E. THOMPSON, passed assistant surgeon. Commissioned from April 19, 1901.  
D. G. BEEBE, assistant surgeon. Resignation accepted, to take effect Nov. 30, 1901.  
A. L. GIBON, medical director. Retired, died Nov. 16, at New York City.  
E. DAVIS, assistant surgeon. Died Nov. 15, at East Las Vegas, New Mexico.

### OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING DEC. 19, 1901.

CARTER, H. R., surgeon. Granted leave of absence for 10 days from Dec. 26, 1901. Dec. 17, 1901.  
STIMPSON, W. G., passed assistant surgeon. Detailed as inspector of unserviceable property at the San Francisco quarantine station. Dec. 18, 1901.  
GREENE, J. B., passed assistant surgeon. To proceed to Malone and Rouses Point, N. Y., for special temporary duty. Dec. 18, 1901.  
GRUBBS, S. B., assistant surgeon. Granted leave of absence for 9 days from Dec. 26. Dec. 13, 1901.  
ANDERSON, J. F., assistant surgeon. Relieved from duty in the office of the U. S. Consul at Liverpool, England, and directed to return to the United States. Dec. 13, 1901.  
FRICKS, L. D., assistant surgeon. Granted leave of absence for 30 days from Dec. 16. Dec. 16, 1901.  
HOBBS, W. C., assistant surgeon. To proceed to Jacksonville, Fla., for the purpose of making a physical examination of the local inspector of Hulls at that port. Dec. 19, 1901.  
FOX, CARROLL, assistant surgeon. Assigned to duty in the office of the U. S. Consul at Liverpool, England, relieving Assistant Surgeon J. F. Anderson. Dec. 19, 1901.

GOLDBERGER, Jos., assistant surgeon. Granted leave of absence for 14 days from Dec. 21. Dec. 17, 1901.

BOGGER, J. S., assistant surgeon. Ten days' extension of leave of absence granted Assistant Surgeon Bogger by Bureau telegram of Dec. 10, revoked. Dec. 19, 1901.

GOODMAN, F. S., hospital steward. Relieved from duty in the Hygienic Laboratory, and directed to proceed to Key West, Florida, and report to medical officer in command for duty and assignment to quarters. Dec. 16, 1901.

WATERS, M. H., hospital steward. Relieved from duty at Boston, Mass., and directed to proceed to Washington, D. C., and report at the Bureau for orders. Dec. 16, 1901.

### SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. SURGICAL SECTION.—The next meeting of the section will be held on Wednesday evening, Jan. 8, 1902, at 8.15 P.M., at the Medical Library, 8 The Fenway.

Papers: "The Suture of Arteries," by Dr. J. C. Hubbard; "A Contribution to the Study of Catgut as a Suture and Ligature Material," by Dr. Hugh Cabot; "A Neglected Method for the Sterilization of Gum Elastic Catheters," by Dr. F. C. Cotton.

F. S. WATSON, M.D., Chairman.

F. B. LUND, M.D., Secretary,  
529 Beacon Street.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The annual meeting of the society will be held in Sprague Hall, Medical Library Building, 8 The Fenway, on Monday evening, Jan. 6, 1902.

Papers: Dr. Francis D. Donoghue, by invitation, "The Practical Development of Ambulance Service"; Arthur K. Stone will present a sketch of the Harvard Medical School from the point of view of the Development of the Department of Theory and Practice.

ARTHUR K. STONE, Secretary, 543 Boylston Street.

### APPOINTMENTS.

DR. EDWARD O. OTIS has been appointed Professor of Pulmonary Diseases and Climatology and DR. HENRY J. BARNES Professor of Hygiene at the Tufts College Medical School, Boston.

### RECENT DEATH.

DR. AMOS C. LEWIS, of Fordham Heights, Borough of the Bronx, New York, died on Dec. 28, at the age of 59. He was graduated from the Cincinnati College of Medicine and Surgery in 1871, and was a specialist in diseases of the skin. During the years that the New York Skin and Cancer Hospital maintained a country branch in the Bronx he was medical superintendent of that institution, the site of which is now occupied by the New York University, and at the time of his death he was attending dermatologist to the city's Fordham hospital.

### BOOKS AND PAMPHLETS RECEIVED.

The Harvard University Catalogue, 1901-02.

Thirty-second Annual Report of the State Board of Health of Massachusetts.

Perineal Prostatectomy. By Parker Syms, M.D., New York City. Illustrated. Reprint. 1901.

Dermoid Tumors. By William Davis Foster, M.D., Kansas City, Mo. Illustrated. Reprint. 1901.

A Manual of the Practice of Medicine. By Frederick Taylor, M.D., F.R.C.P. Sixth edition. Philadelphia: P. Blakiston's Son & Co. 1901.

Kirkes' Handbook of Physiology. By W. D. Halliburton, M.D., F.R.S. Seventeenth edition. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Index-Catalogue of the Library of the Surgeon-General's Office, United States Army, Authors and Subjects. Second Series, Vol. VI. Washington: Government Printing Office. 1901.

Veneral Diseases. A Manual for Students and Practitioners. By James R. Hayden, M.D. Third and revised edition. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Manual of Physical Diagnosis for the use of Students and Physicians. By James Tyson, M.D. Fourth edition revised and enlarged. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.



## Original Articles.

### REMARKS ON THE DIAGNOSIS BETWEEN ACUTE APPENDICITIS AND SOME ATYPICAL CASES OF TYPHOID FEVER.

BY MAURICE H. RICHARDSON, M.D., BOSTON.

WHEN, for chronic appendicitis or for suspected chronic appendicitis, the appendix is removed, the patient is to be congratulated, even if his appendix proves on careful laboratory investigation to be normal. When, during an attack of typhoid fever, a normal appendix is removed under the mistaken diagnosis of appendicitis, grave apprehensions as to the immediate outcome cannot but arise. Both patient and surgeon are indeed to be congratulated if recovery follows. Fortunately, operations in the initial stages of typhoid are as a rule well borne — and it is the initial stages of the unusual and atypical cases that most frequently suggest appendicitis. A brief and uncomplicated appendectomy, performed in the first weeks of a typhoid, would probably have little unfavorable influence upon the subsequent course of the disease. In the case of death in the course of the disease, however, there could never be, in the minds of either the surgeon or the patient's friends, the consoling thought that the early operation had nothing to do with the fatal termination.

When a late perforation in an unrecognized typhoid, by pain, tenderness, rigidity, and other symptoms of general peritonitis, demands operation for supposed appendicular peritonitis, the prognosis is indeed grave and the result usually fatal. The difference is that in the former case laparotomy is a useless — indeed, a worse than useless — interference with the natural course of the disease; in the latter it is an imperative procedure if the lesion is appendicitis, and the only chance of recovery if it is a typhoid perforation.

Operations in the later stages of typhoid, even those operations which in themselves are comparatively slight, have a high mortality, as Dr. Cheever remarked some years ago in a discussion upon operations for typhoid perforations. The surgeon must always be on his guard lest he fail to recognize typhoid fever, not only in its ordinary forms, but in its unusual and atypical, and subject his patient to an operation which, even if apparently made necessary by the clinical evidence, is entirely unjustified by the pathological findings.

A familiarity with typhoid, and indeed with other zymotic diseases, gained in general practice, is of great advantage in the education of the surgeon, for he learns much of constitutional disturbances under the influence of widely differing diseases dependent upon micro-organisms of great diversity; he observes the symptoms and course of infections in organs beyond the surgeon's reach, as well as in organs easily accessible; he sees, for example, the effects of the pneumococcus in the

lung, as well as in the peritoneum; the gonococcus in gonorrhea, as well as in joint infections, and even in peritonitis; the typhoid bacillus in typhoid fever, as well as in infections of the gall bladder. Though the surgeon may have had considerable previous training in medical wards or in general practice, he does not, with acute infectious diseases like typhoid fever, gain that familiarity by which almost imperceptible signs suggest the true lesion; he lacks that sharpness of trained observation in medical cases so essential to the ready and skilful clinician who, between two possible lesions — between typhoid fever and appendicitis, for example — which to the ordinary observer would perhaps be indistinguishable, is able almost at a glance to differentiate.

Even if the surgeon is already familiar with typhoid fever in its atypical as well as in its commoner aspects, he should, whenever possible, seek the aid of an experienced physician. Unfortunately, he cannot always have the medical man at hand; he must often make the diagnosis himself, and without delay; he must bear the whole responsibility of decision for or against operation — a decision which may withhold an urgent operation in appendicitis, or impose a worse than useless one in typhoid fever.

Until very recently I had heard of but two abdominal emergencies which were supposed to be appendicitis, and were operated upon as appendicitis, but which proved to be typhoid fever. One patient recovered, and one died. During the past month I have had good reason to suspect typhoid in 4 cases, if not in 5. The first case presented such strong evidence of typhoid that I postponed operation only to find, at the end of 48 hours, an acute intestinal obstruction caused by a band. In the 3 other cases I was called by experienced physicians to decide the question of operation — the symptoms in all suggesting acute appendicitis, or some other obscure abdominal lesion. Two of these developed typical typhoid fever; the third proved to be a simple and transitory fever dependent upon overtraining and injuries in the football field.

There are three considerations of importance in connection with this subject, as illustrated by the histories which follow: (1) There is a strong possibility of mistaking a case of typhoid fever, in which abdominal pain is a conspicuous feature of onset, for an acute appendicitis, even if the observers combine a large experience in both the medical and the surgical aspects of the disease; (2) the consequences of error are so serious and so humiliating that the surgeon may go to one extreme, and, hesitating about his diagnosis, may lose precious time; (3) or, by going to the other extreme, he may fall into the error of meddling and hasty intervention. Between his fears of making an unnecessary and possibly fatal exploration, and his fears of withholding the patient's only chance of cure, the surgeon's anxieties are excessive, for upon him, after all, must rest the chief responsibilities of decision.



CASE I. A boy of 4, living in a community where typhoid fever was prevalent, for a week had had, when walking, pain in the abdomen; there was also moderate fever. There had been more or less constipation, and on the day of my first examination there was vomiting. There had also been some nosebleed. The pulse had been from 120 to 130; the temperature from 99° to 100°. The boy had never had an attack like this before. The family history was good. The abdomen was generally distended and tympanitic, but not tender, and there was no flinching or evidence of pain during the examination. The bowels had been moving previously, and constipation was not a marked sign. There was painful and visible peristalsis, which suggested an intestinal obstruction. There had been no vomiting. The constitutional symptoms were not marked. The area of splenic dullness was increased. There were suspicious rose spots. Rectal examination was negative.

The diagnosis upon the strength of which we were called was acute appendicitis with general peritonitis. It seemed to me clear that the lesion was not appendicitis, for there was no local tenderness either in the right iliac fossa or by rectum; that it was not a general peritonitis, for there was neither localized nor general tenderness, no rigidity and no vomiting.

This child presented abdominal symptoms with fever. Pain was a prominent feature, and the only one which suggested a possible surgical lesion. The facies, the pulse and temperature, the full abdomen, the splenic dullness—all suggested typhoid.

In a neighboring town some years before I had explored the abdomen in a case of suspected intestinal obstruction. The patient, a young girl, was supposed to have appendicitis. It seemed to me a case of intestinal obstruction, and I therefore operated. I found nothing sufficient to explain the symptoms, though the gastro-intestinal tract was thoroughly explored. The child, unfortunately, died.

This case was vividly recalled by the present illness. It seemed wise to delay operation long enough for a careful blood examination. Dr. Hugh Williams made this, and reported a doubtful Widal reaction. Two days later I felt obliged to operate for continuing evidence of intestinal obstruction. The constitutional signs, too, had been increasing in severity, though the temperature was only 102°, and the pulse was from 130 to 140. Operation showed a thread-like band running from mesentery to mesentery across a coil of small intestine near the ileocecal valve, and producing complete obstruction. There was no necrosis of intestine, no localized peritonitis; in fact, nothing connected with the obstruction to account for the constitutional signs. Division of the band relieved immediately the obstruction, the freed coil rising into its normal position and relations. The band had, however, made a deep sulcus in the coil. Above and below this sulcus the intestine was distended. The collapse usually in the coils beyond a complete obstruction was not present in this case. The appearances suggested a general distention pulling against a transverse band and producing the appearances of a deep obstructive sulcus. There was, nevertheless, a complete mechanical closure of the intestinal lumen. On several presenting coils of the small intestine Peyer's patches could be seen, in marked contrast with the surrounding translucent bowel. In abdominal operations upon children I have had opportunities of observing the small intestines under many conditions of acute and chronic disease; but never before have Peyer's patches been conspicuous, or even visible, through the intestinal walls. I had never opened the abdomen in children, however, when typhoid fever was suspected, though in the fatal case mentioned the possibility of typhoid was considered. The areas seen in the present case were situated in the intestinal wall, opposite the mesenteric insertion. They were from 1 1/2 to 2 inches long and less than an inch broad. The peritoneum over them was not injected, roughened or adherent. The whole patch was opaque. No enlargement of the mesenteric lymph glands was observed.

Several interesting questions arise in connection with these opaque areas. Were they Peyer's patches? If so, were they abnormal? Who is to say whether they were abnormal or not, in view of the fact that so few observations can have been made during life upon the intestines of children in the early days of typhoid fever? Regarding the Peyer's patch in healthy intestines, does the increased translucency of great distention make it visible, while contraction renders it invisible? In adults no such appearances exist, even when the small intestine is extremely dilated.

What are the appearances of the small intestine in adults during life in the early days of typhoid fever? Observations must be extremely infrequent at this stage, when the surgical emergencies of typhoid scarcely ever arise. During the first three or four days is the patch more conspicuous than in health, and is the peritoneum over it changed in color and in translucency?

It seems a reasonable supposition that this child had typhoid fever, as we suspected, and that the obstruction, evidently congenital, was precipitated by the changes in the small intestine, especially the distention, owing to the typhoid. The distention, by increasing the pressure against the band, began an obstruction, which at first was incomplete, but which with increasing distention became absolute.

If typhoid fever was not the exciting cause of the obstruction, two valuable days were lost in making a positive diagnosis. The fear of making a meddlesome—not to say a fatal—exploration may by delay have turned the scale; and yet the patient lost but little by the delay, for the lesion was a simple obstruction without bowel necrosis or peritonitis. Moreover, the symptoms of obstruction were such as are sometimes safely withstood—by adults, at least—for days or even for weeks.

CASE II. The patient, a boy of 18, under the care of Dr. Walker of Concord, N. H., was severely injured one Thursday on the football field at St. Paul's School. He was knocked unconscious in the struggle, and was dazed for some time after regaining consciousness. The next day he developed a temperature of 103.5°, and complained of obscure pain in the lower abdomen. Before the game he had for some days complained of a general malaise. The game itself was exciting and severe, and was to this boy a source of great mental distress and possible mortification. The high temperature of Friday was accompanied by headache, and by tenderness in the lower abdomen and in the left thigh. For some days previously the right heel had been sore from a blister. This had entirely healed, however, and there were no enlarged or tender glands in the right groin.

From Friday until Sunday night the temperature was from 104° to 105°. The symptoms were abdominal, cerebral and constitutional. There was tenderness over the right pelvic brim elicited only by deep pressure, marked tenderness on slight pressure over the bladder, and exquisite tenderness over the left pubic spine. The left adductor group of muscles also was extremely tender. No tumor could be detected. Rectal examination was negative. The spleen was enlarged. There were no rose spots. There had been no vomiting. The abdomen was neither distended nor rigid. The pain was dull and obscure—not sharp nor well defined.

Dr. F. C. Shattuck saw him on Sunday morning, and, though he felt quite positive that no surgical lesion existed, thought it better to suggest a surgeon. I saw the patient on Sunday night. There was marked tenderness over the bladder and over the left adductor group of muscles. The abdominal tenderness had been more marked on the left side than on the right. The temperature was 105°. The blood count showed 5,000 whites.

The possibilities considered were: Injury to bladder or to intestine with beginning peritonitis; an inflamed appendix, centrally situated, that had started a peritonitis in the left side; an atypical typhoid fever; simple fatigue and excitement combined with severe accidental violence.

We were prepared to operate on the spot, but no clear indications for intervention were present. The suspicion of typhoid fever was strong, though there had been no cases at the school. There were several reasons why intervention seemed inadvisable. The temperature was too high for an ordinary appendicitis, especially in the absence of rigidity or tumor. A spreading peritonitis from a ruptured viscus was hardly to be thought of, when, three days after the supposed rupture, no rigidity, distention or vomiting was present. The blood count of 5,000 was against appendicitis, though in acute appendicitis with an overwhelming general peritonitis I have seen such a count.

I decided against operation. The next morning the temperature had fallen from 105° to 104°, and the boy was reported as more comfortable.

On my way to Boston Monday morning, influenced by the grave responsibilities of leaving the boy unoperated upon, I wrote the following notes:

This case illustrates one of the most difficult aspects of abdominal disease, for it presents no definite and unmistakable evidence as to the lesion, and therefore no guiding signs as to the treatment. In the diagnosis we must consider an acute febrile disturbance preceded by a few days of malaise, and ushered in by a severe and exciting game of football, which in this particular instance was a source of great mental distress and possible mortification. Immediately following a severe blow on the head, which dazed the boy, came a train of symptoms, chief of which were headache and high temperature, with tenderness in the lower abdomen and pain in the left thigh. Preceding these symptoms there was a sore heel (right) caused by a blister. I found the blister entirely healed. There were no enlarged inguinal glands on either side, but the right groin had been tender. There were no inflamed lymphatics, no injected glands. There was no redness and no swelling. The sore heel could be eliminated as a possible cause of the symptoms. The next possibility in this case was that of a traumatic peritonitis. Such an infection can occur only from a ruptured viscus,—intestine, stomach or bladder. No such injury could have happened,—at least no rupture of intestine,—for there was no general peritonitis and no rigidity, no vomiting, no distention, no peristaltic paralysis. The possibility of a ruptured bladder and a slight extravasation of urine must be borne in mind, for a moderate extravasation might account for the pain and the tenderness over the bladder and in the groin. We must leave a urinary extravasation as a slight possibility. If there is any extravasated urine it is in the perivesical spaces, and will show itself later. The deep tenderness over the appendix suggests appendicitis with acute toxemia and no general peritonitis,—an appendix rapidly absorbing, from a virulent micro-organism, without general peritonitis,—perhaps necrotic throughout, perhaps necrotic only in internal areas. Appendicitis of a rare type is not beyond the possibilities.

Here is a boy who, after a few days' malaise, is injured in a violent football game, whose temperature the first time that it is taken is 103°, whose headache and malaise continue, and whose temperature keeps at 104° to 105°, with one degree of variation morning

and evening; whose symptoms are abdominal, cerebral and constitutional, but who has also a sharp local tenderness. We must, therefore, before assuming the typhoid fever, which the symptoms strongly suggest, explain the local tenderness, which is extreme and distinctly confined to the lower central abdomen. The tenderness is elicited by deep pressure over the right pelvic brim; by slight pressure over bladder. It is exquisite on pressure over the left pubic spine; it extends down the adductor region, and is marked in the tendons of the adductors near the pubes. There is no tumor; the tenderness is decreasing; there is no rectal tenderness or tumor. The spleen is enlarged. There are no rose spots.

These local signs are, I believe, the result of violent muscular strain received when he was suffering from a beginning typhoid. The diagnosis is, therefore, typhoid fever.

On the other hand, why has he not simple febricula from cold, overexertion, muscular strain, and blow on the head? The diagnosis lies between that and typhoid. The next few days will decide the diagnosis.

The fear of typhoid fever proved groundless. Lesions of bladder, appendix, and peritoneum did not exist. The temperature remained at a high point for several days; then gradually fell to normal. Under salicylates the pain and tenderness rapidly disappeared. Dr. Walker rightly concluded that the symptoms were caused by a severe blow on the head in a young boy who, after a few days' malaise, had become completely exhausted by a trying game of football.

Though the contra-indications to operation in this case seemed clear and were rightly interpreted, it would not have been surprising had a serious local peritonitis, and possibly a grave general one, been found under full headway during the twenty-four hours after my examination. It was with some misgivings that I left him, and I could not but feel deeply impressed by the responsibility of decision. Fortunately, in cases of such grave doubt one seldom errs in withholding intervention when there are no well-defined localizing signs of appendicitis; for this disease, even if it shows itself in regions remote from the usual seat of the appendix, presents almost unmistakable signs of a localized peritonitis,—signs which in this patient were not in the least conclusive.

CASE III. The third case, a patient of Dr. W. D. Swan of Cambridge, was that of a gentleman of 34, whom I saw on Tuesday, Nov. 27, 1900.

On Sunday night (Nov. 25) he was uncomfortable, with oppression in the lower chest. There was slight pain, with fulness in the stomach. The temperature was 101°; the pulse 80. The pain and discomfort continued through the day, and, though difficult of localization, seemed chiefly around and above the umbilicus. On Monday he was sent to bed. The temperature was then 102°, the pulse 88. On Monday night he took 1 gr. of calomel in divided doses. Tuesday morning the bowels moved. The temperature was 102°, the pulse 90. At 10 A.M. the white count was 15,000, the temperature 103°, the pulse 100. At 1 P.M. he was in great pain, which, however, was sufficiently relieved by one-fourth gr. of morphine, so that he went to sleep. At 5 P.M. the temperature was 103° and the pulse 100. At 9 P.M. the temperature was 104°, the pulse 108. He indicated the seat of pain by putting his hand over the region of the appendix. The bowels had not moved since morning, but he had passed gas. The bowels were never constipated.

The patient himself said that on the preceding Friday night, after eating heartily of a rich dinner, he had felt sick, and had been obliged to lie down. There was no abdominal pain or discomfort. On Saturday he felt miserable, and had but little appetite for lunch. Before dinner he had some discomfort, but it was a faint and "gone" feeling, rather than a pain. In fact, there was no sharp pain. He ate a good dinner, however, and worked late that night. On Sunday morning he felt miserable, but worked hard until 11, when he went out. On Sunday he began to have pain, but it was in no particular spot. The pain and discomfort continued through Monday, as described.

On Tuesday morning, between 9 and 10 o'clock, he was in agony. The pain was in the epigastrium, and later in the right iliac fossa. There was no nausea or vomiting.

On Tuesday evening (Nov. 27) at 9 o'clock, when I first saw the patient, I found neither tenderness, rigidity nor tumor. There was perhaps a slight resistance high up in the right side of the abdomen. The temperature was 104°, the pulse 100. The tongue was clean. There was much rumbling of gas in the bowels.

The history of this case, with the malaise and high temperature, suggested a typhoid of rapid onset. Although there had been pain and discomfort, it was unlikely that these symptoms were dependent upon an appendicitis. The fact, however, that absorption from the interior of an appendix, without perforation or localized peritonitis, may cause severe constitutional reaction, with but trivial local pain, made the diagnosis of appendicitis in this case a possibility. This possibility, remote though it was, became a strong one when, on Tuesday morning, violent pain started in the epigastrium and concentrated itself in the right iliac fossa. This symptom is so characteristic of appendicitis that Dr. Swan, though he felt convinced that it could not be appendicitis, felt unwilling to take the responsibility of not calling a surgeon. The history strongly indicated the onset of an acute appendicitis after a few days of indigestion and malaise. The physical examination of the abdomen was the chief reliance in excluding appendicitis. Pain which is described as an "agony" that is excruciating and unbearable, cannot fail, if owing to an extravasation of septic fluids, to give unmistakable physical signs. There must be rigidity and tenderness, even if there is no tumor, or even if the seat of the extravasation is deep and beyond palpation. An extravasation from the posterior wall of the stomach into the lesser omental cavity cannot fail to cause rigidity and tenderness in the epigastrium; a perforation of the appendix in the depths of the pelvis cannot fail to cause rigidity and tenderness in the lower abdomen; if there is no rigidity, there can be no peritonitis, if no tenderness, no peritonitis. The physical evidence of local peritonitis being conspicuous by its absence, the strongest possible doubt of appendicitis was raised, for the violent pain could not possibly be caused by any lesion confined to the internal layers of the appendix itself. The pain, on the other hand, if not confirmed by physical signs in the abdomen, was certainly far from being suggestive of typhoid fever. Indeed, had it not been for the pain, there would have been little doubt in the minds of anyone

that a typhoid was in progress. The malaise and the high temperature strongly suggested it. Moreover, the high temperature itself threw a strong doubt upon the diagnosis of appendicitis long before the pain became acute. Appendicitis, even in its worst forms, seldom shows so high a temperature, and the occurrence of such a temperature should always lead to especial care in excluding the common zymotic lesions. The absence of rigidity, tenderness, tumor and resistance at once threw out an appendicitis, for, as I have just stated, an appendicitis that could cause agonizing pain, could not possibly fail also to cause reflex muscular rigidity and tenderness on deep pressure.

A hasty interpretation of the symptoms in this case would have led many a zealous advocate of universal operation for appendicitis into a meddlesome surgical interference. Fortunately, the doubts as to diagnosis were strong, and the contraindications to operation imperative. The patient was seen the next day by Dr. F. C. Shattuck, who made the diagnosis of typhoid fever. The disease resulted favorably, though the patient was very sick.

CASE IV. The last case was that of a boy of 11, who, when I first saw him, was about to be placed upon the operating table. Everything had been prepared for exploration and for removal of the appendix. One year before, on Thanksgiving day, he had had an attack of what was called colitis. There was pain, tenderness, and some muscular rigidity in the right lower quadrant of the abdomen, where there was also an ill-defined tumor. The temperature ranged from 101° to 105°. He was sick 10 days, when he developed an osteomyelitis, for which he underwent several operations. From that time to Thanksgiving of the present year there had been no bowel trouble. The history in detail is as follows: He was said on Thanksgiving day to have eaten to excess. His mother, however, said that he ate so little that she was worried about him. He complained of his head that day, as well as on the following day, Friday. Friday afternoon he rode on horseback. In the evening he had no appetite and went to bed. The temperature was 104°. There was no pain except from an enema which was followed by the passage of a mass of currants and raisins. After the passage there was no pain. Saturday morning the temperature was 102°; later Saturday the temperature was 104°. Sunday the temperature was 103.2°. There was no pain except from movements of the bowels. There was no marked pain at any time. On Sunday he began to have loose stools. All this time there had been general abdominal tenderness—more in the region of the appendix than elsewhere. On Monday night the highest temperature was 104.8°. There were eight loose watery movements on Monday. There had been no nausea or vomiting at any time. On Sunday a tumor had been discovered in the right iliac fossa. It was said that the old tumor had persisted. He had never been a robust boy.

On examination at midnight of Tuesday I found a well-nourished, stout boy, sound asleep. He was easily aroused, and seemed bright and without anxiety or distress. The abdomen was full and soft. Deep pressure was everywhere possible, but it caused expressions of pain. The first deep pressure over the region of the appendix brought out the cry, "Oh! that hurts awfully!" That seemed to settle the diagnosis of appendicitis, till similar pressure in the left iliac fossa brought out even more forcible expressions of tenderness; so in the epigastrium and about the navel. Rectal examination was painful at the anus, but not at the finger's tip. There was no rigidity, no tumor, no cake, no resistance, no dulness. Over the

epigastrium there were spots which suggested rose spots. The splenic dulness was increased. The temperature had dropped from 105° to 104°; the tongue was slightly furred. The general condition was excellent. The surgeon who had been called, and who was present at this examination, was sure that he had detected a tumor about the appendix. I could find nothing that satisfied me of the existence of any tumor, or even of any increased deep resistance. I advised against operation on the ground that there was no appendicitis, or, if there was, that no operation was indicated.

On Wednesday evening I examined the boy again, and I was more than ever convinced that the constitutional symptoms were not dependent upon appendicitis, and that there were no physical signs dependent upon that disease. Operation was again decided against.

The next I heard of the boy that he was running a typical typhoid. There was a sustained high temperature. The bowels moved once in 24 hours. There were two or three hemorrhages from the bowels. About a month later the boy developed pneumonia. His temperature ranged about 104°. He eventually made a good recovery.

This case is a conspicuous example of the difficulties sometimes met with in the diagnosis of acute abdominal diseases, especially when the onset and the early development of the disease — whether typhoid fever or appendicitis — are decidedly unusual. The possibilities of error are great, and mistakes cannot always be avoided even by the most experienced and the most careful diagnosticians. This is especially true when the signs characteristic of one are mild, while those suggesting the other are pronounced; — when, for example, in a case of true typhoid, malaise, high temperature, rose spots, and enlarged spleen are inconspicuous, while local pain and tenderness are pronounced; so in a case of true appendicitis, when pain and tenderness are mild, while constitutional symptoms are severe. If the surgeon, however, in the absence of well-defined local signs, withholds his hand, he will avoid the worse than useless exploration of typhoid fever.

In making the diagnosis of acute abdominal lesions it is essential to give each symptom and group of symptoms as accurately as possible its real weight. Nothing is easier, however, than to overestimate or to underestimate the value of symptoms. A correct appreciation of them can be gained only by large experience. The significance of pain alone, for example, is very hard to estimate, unless the observer has had abundant opportunity of observing how well the patient bears pain. The family physician can often gauge pain much better than the consultant. Suffering which may to the surgeon seem acute and hard to bear, may to the attending physicians appear — and probably correctly — of trivial significance. The pain experienced in the early days of a typhoid may be described by the patient as an agony, and unbearable. The consultant, relying on the accuracy of the patient's description, will sometimes be deceived. Pain alone, unattended by other and confirming signs, will often mislead.

In acute abdominal lesions, considered from the surgical point of view, 4 symptoms have especial weight. In various combinations these symptoms

indicate about every acute surgical lesion, except perhaps simple hemorrhage. These symptoms are pain, tenderness, muscular rigidity and fever. Take the lesions attended by peritonitis, localized or general. They all are attended by pain, tenderness, muscular rigidity, and fever. The absence of any one of these symptoms throws doubt upon the diagnosis of peritonitis, and therefore upon every lesion in which an infection of the peritoneum must needs be present. For example, no lesion of the appendix sufficiently extensive to affect the peritoneum can possibly exist without either pain, tenderness, rigidity or fever. Let any one of these symptoms be absent, and doubt as to the existence of an acute appendicitis arises. Suppose there is pain, tenderness and fever, without rigidity of the overlying muscles. A peritonitis localized about the appendix is at once excluded, though it is more than likely that there is some intra-appendicular lesion. So with pain and rigidity in the right iliac fossa, the absence of tenderness would at once raise serious doubts as to the existence of appendicitis. Again, tenderness, rigidity and fever, without pain, would immediately throw doubt upon the localized peritonitis of an acute appendicitis. Pain, rigidity and tenderness, without fever, would be the least doubtful combination, for absence of fever is sometimes conspicuous in really serious local infections of the peritoneum.

When typhoid fever is suspected, one or more unusual combinations of the four symptoms just mentioned will prevail. The accurate observer cannot but be on his guard. For example, let there be pain and tenderness in the right iliac fossa, with fever but without rigidity. The surgeon *must account* for the absence of rigidity before he opens the abdomen. He must inquire into a previous malaise. He must inquire most minutely into the history of the pain itself, its manner of onset, its relations with temperature and pulse, its early and its late situation. He must inquire about the prevalence of typhoid in the community. Every abdominal and thoracic organ must be carefully examined. He must, furthermore, make exhaustive examinations of the blood. All this care is made imperative in the absence of a single symptom — rigidity of abdominal muscles.

Another example: Assume that in a questionable case of acute abdominal disease there has been no pain, but that there is tenderness, rigidity and fever. The absence of painful onset and of present pain at once suggests something out of the common. A temperature of 104°-105°, with gradually appearing tenderness and rigidity, is so unusual in appendicitis that that disease can be almost certainly ruled out owing to the absence of pain alone. Tenderness and rigidity must be accounted for by other lesions. Indeed, it is so hard to imagine a disease in which, without pain at one time or another, there is fever, local tenderness and rigidity, that one can almost say that the combination of these three symptoms alone — fever, tenderness

and rigidity — is an impossible one in acute abdominal disease. When, as in Case IV, there is no pain; when tenderness is so slight as to be hard of detection, and when the existence of rigidity is absolutely denied, by one consultant at least, the presence of a local peritonitis of any origin must be denied.

To take one more example: Suppose there is pain and rigidity in the right iliac fossa, and fever, without tenderness. This combination is, too, almost un-supposable, for a lesion which causes rigidity causes also tenderness. If the lesion is an infection of the peritoneum, it causes also fever. The absence of tenderness in a localized rigid area which is the seat of pain, suggests disease of the abdominal wall, a distended intestine, a new growth, but never a localized peritonitis. It also suggests hyperesthesia, exaggeration, or even malingering. If rigidity be present in an anomalous typhoid, it is to be explained only by the theory that rigidity helps to immobilize and protect the subjacent seat of typhoidal ulceration. Rigidity and tenderness without pain, in the course of a typhoid, is more supposable than rigidity and pain without tenderness, for, in the former case, the near approach of the typhoidal ulceration to the peritoneal surface may be sufficient to cause both tenderness and reflex rigidity.

After all, the main point to be emphasized in the discrimination between typhoid and appendicitis is that, when any of the local signs mentioned are absent, especially tenderness and rigidity, fever strongly suggests typhoid, and the case must be studied with special care lest typhoid be overlooked; so, too, when the constitutional signs outweigh the local.

Finally, a few facts should be emphasized. Without pain at some time in the course of the disease, there can be no acute surgical lesion of the abdomen; temperature with pain, but without rigidity or tenderness, means typhoid fever or simple continued fever; very high temperature should excite suspicion if pain and tenderness are present but not marked, for acute appendicitis has usually a moderate temperature; a soft abdomen with a high temperature is a suspicious combination, even if there is pain and tenderness; when typhoid is suspected, the pain and tenderness must be distinctly localized in the appendix, and confirmed by rigidity, resistance or tumor, before operation for appendicitis is justifiable.

When there is doubt as to typhoid, the operation should be postponed if constitutional signs are severe, and local ones hard of detection. When the abdominal symptoms — pain, tenderness, rigidity, with or without distention — call loudly for operation, the abdomen must be opened, in spite of the possibilities of typhoid; but cases suggesting typhoid as strongly as appendicitis, should, until the diagnosis is perfectly clear, be carefully observed.

During a railroad journey to a distant city I spent several hours in revising the manuscript of the foregoing pages. The patient that we were

about to see was a girl, aged 21, who was said to have appendicitis. The attending physician wished an early operation if any operation at all, and the consultant also, although the latter was not impressed by any urgency in this particular case.

CASE V. The patient, a college girl, aged 21, was seen by Dr. Jones and myself on Thursday, Jan. 17, 1901. On the preceding Friday she had a headache. Up to that day, however, she had been in her usual health, except that for about a week she had had a cold and slight bronchitis. On Saturday, Jan. 12, the headache still continued. On both Friday and Saturday her diet had been chiefly milk. About noon on Saturday she began to have pain in the abdomen. The attending physician saw her Sunday noon. At that time the temperature and the pulse were normal. There was a localized area of sensitiveness at McBurney's point. There had been no nausea or vomiting. On Sunday afternoon Dr. —, from a neighboring city, saw the patient in consultation. She then had vomited after taking medicine. The abdominal pain, which had been continuous since the first onset on Saturday noon, had gradually increased. On Monday the temperature was one degree above the normal. The pain was on the right side of the abdomen and extended upward under the ribs and downward into the groin. There was no jaundice, tympanites or rigidity. For the next 3 days the temperature was a little higher in the afternoon than in the forenoon. The 8 o'clock temperature on Wednesday morning was 101.4°; evening temperature, 103.4°. Thursday morning it was 100.8°. At this time there was but little pain, but what pain there was was in the right iliac fossa. The patient herself said that she was not sure about the beginning of the pain. Her father and mother were living, and well. A paternal aunt, a paternal uncle, and her paternal grandfather died of consumption.

The attending physician said that she did not remember much about the inception of the pain; that no morphia had been required except on the way to the hospital, when the patient was given one-eighth of a grain. There had been loss of appetite and slight constipation.

On physical examination I found a well-nourished, healthy-looking girl, with red cheeks and good pulse. The abdomen was soft; the tongue furred; deep pressure in the right iliac fossa caused pain; so also in the left iliac fossa and epigastrium. There was no tumor to be detected in the right iliac fossa, nor was anything to be felt by rectum. Pressure could not be made as deeply in the right as in the left iliac fossa. Repeated examination showed the same results. The area of the splenic dulness seemed to me increased, though the edge of the spleen was not perceptible under the rib margin. There were many papules over the left scapula. The examination of the blood was very unsatisfactory, for we had no apparatus for counting. Such as it was, the examination showed no increase in the leucocytes.

I felt very suspicious of typhoid, and my first impulse was to come home without operating. The patient was far away, however, and it seemed only right to stay long enough in the town to make repeated examinations and to talk the case over. I examined for local signs again and again, and always with the same result. There was a deep tenderness in the exact region of the appendix. It was impossible to get the fingers in as deeply on that side as on the left side. I decided, finally, to examine her under ether. Under ether there was the same sensation of deep resistance on the right. A case very similar to this in my own family, in which I was for a week fearful of typhoid, and in which there was the same absence of distinct and definitely localized physical signs, proved, at a very successful operation by Dr. Cabot, to be an appendix buried deeply behind the cecum, surrounded by a considerable collection of pus. The case under consideration reminded me so much of my son's that I

finally decided to examine under ether. Dr. Jones favored the diagnosis of appendicitis.

I then proceeded, though with great misgivings, to open the abdomen.

A small cut was made through the right rectus, large enough to admit the finger. I felt at once an irregular, hard mass, near the ileocecal valve, in the usual position of the appendix. The tumor was not outside the cecum, but rather behind it, and suggested strongly an inflamed appendix buried in a retrocecal pouch and resting on the psoas muscle at the outer border of the lumbar bodies. The presence of this mass at once demonstrated, as I thought, the existence of an acute appendicitis. Pulling out the caput ceci, however, brought immediately into view an appendix which seemed perfectly normal. I then enlarged the incision so that I could bring out the whole ileocecal coil. The tumor was found to be a conglomeration of small, reddish, friable lymph glands in the ileocecal mesentery. The largest of these glands was about the size of a filbert; the smallest, the size of a pea. The appendix was tied at its base with silk, and cut off

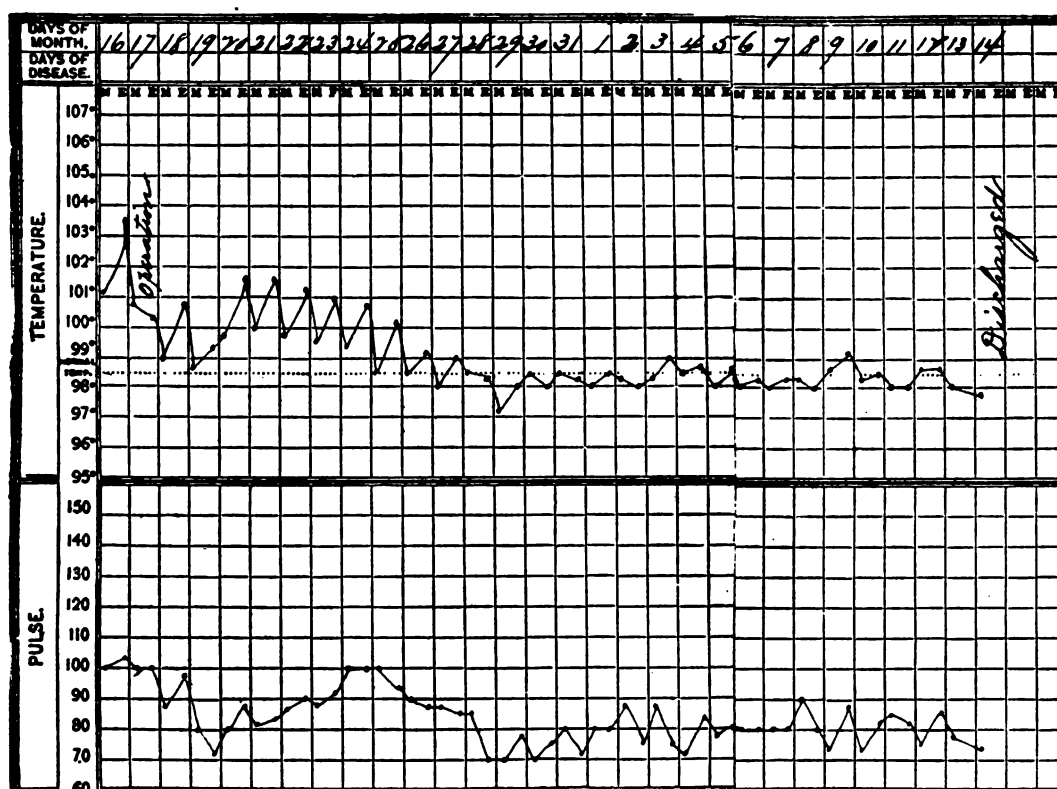
peritoneum at that fold slightly adherent. One or two bleeding points were tied with silk. Connected with the omentum there was a small, reddish polypus, which was removed. The stomach, even when the patient was in the Trendelenburg position, came down well below the navel. There was marked dilatation and tortuosity of the colon. The abdominal incision was closed without drainage. The pulse when the patient was put to bed was 120.

The glands were submitted to Dr. Whitney, and in a few hours I received the following message:

"Dr. Whitney congratulates Dr. Richardson on making the earliest diagnosis of typhoid on record. The glands sent Dr. Whitney show on examination histological characteristics of typhoid."

On the following morning the temperature went to normal. Then for 2 or 3 days it rose gradually; then fell to normal and remained there.

After hardening, the glands were again thoroughly examined, and Dr. Whitney made the following report:



close to the ligature with the actual cautery. Its base was depressed into the cecum and buried there with fine silk sutures. I removed the appendix because I was not sure that it was not the source of the lymph gland infection. After completing the appendectomy I incised very carefully the peritoneum over the tumors, and removed with the blunt dissector 4 or 5 enlarged and juicy lymph glands. All that could be felt were removed.

The lower end of the ileum was then examined for evidence of typhoid fever. The small intestines were collapsed and seemed to be perfectly healthy. In the mesenteric portion of the ileum, close to its insertion into the cecum, there was a peculiar mass—a flattened, resistant mass in the intestinal wall. This, I repeat, was on the mesenteric side of the small intestine, and not on the side opposite the mesenteric insertion. The tissues over this indurated mass were in no way changed, but the fold between the ileum and the cecum was somewhat edematous, and the opposing

Boston, Feb. 14, 1901.

DEAR DR. RICHARDSON: The lymph-nodes removed Jan. 18, 1901, were several in number, the largest the size of a bean, soft, and of a red medullary aspect.

Examination of the fresh tissue under the microscope showed large, mononuclear cells, among which were many containing more or less degenerated red corpuscles and fragments of leucocytes.

Microscopic examination of the hardened section showed the follicles, in places, distinct. The pulp was increased everywhere, and there was a marked proliferation of the endothelial lining of the lymph sinuses, with irregularly scattered accumulations of endothelial cells, the size of millary tubules. In places these cells were more or less fused together, having a homogeneous hyaline appearance; in others there was a fibrous network among them, while some areas were remarkable for fragmented nuclei scattered through them, giving to the spots the appearance of "focal necroses," such as are seen in the liver.



The condition is that of a proliferation of endothelial cells with phagocytic properties and centres of hyaline degeneration and focal necrosis.

These appearances are perfectly characteristic of the changes in lymph-nodes produced by typhoid fever.

The cultures on blood serum were sterile.

Yours very truly,

(Signed)

W. F. WHITNEY.

The patient made a rapid convalescence after the operation.

This case seems to me one of very great interest. Coming as it did after I had thought much on the subject, after I had written a letter to the *Medical Journal* upon it, and had prepared the MS. of the preceding cases, this case presented, it seems to me, the greatest difficulties. Had the patient been close at hand, where I could have watched her, I should undoubtedly have postponed operation. As she was far away, a student in a college at some distance from Boston, and as her father and mother were missionaries in India, we felt deeply the responsibilities of the case. The operation was not performed hastily; it was only after the most careful deliberation that it was decided upon. Even then, however, the diagnosis of appendicitis was made when appendicitis did not exist.

The only evidence of typhoid fever in this case is Dr. Whitney's report on the histological elements of the glands. I supposed at the time that this was an acute tuberculosis of the ileum near its insertion into the cecum, with secondary infection of the mesenteric lymph glands, the focus of invasion being the already described resistant mass at the insertion of the mesentery of the ileum. The case suggested strongly that of a boy upon whom I had previously operated for supposed appendicitis.<sup>1</sup> There was, however, no evidence of tuberculosis in the present case. Dr. Whitney's opinion was very strong that the glands were themselves typhoidal. No germ of typhoid fever was detected; the cultures were sterile, and no bacilli were found in the tumor.

Assuming that this was a case of typhoid fever,—and the only positive evidence in this case points to that diagnosis,—what effect did the operation have upon the disease? The temperature immediately fell to normal; it then rose for two days, gradually fell to normal, and the convalescence was perfectly satisfactory. No evidence of ulceration was discovered anywhere in the intestine, except, as I have said, near the ileocecal valve. The lymph glands were probably dependent upon the lesion felt in the small intestine. If this was a typhoidal ulcer, it was on the mesenteric side, and the glands were presumably engorged with the products of germ growth. Is it fair to assume that the removal of these glands exercised any effect, and, if so, was that effect a beneficial one or not? If this case was one of typhoid fever, it was a typhoid of the mildest form. The operation did not seem in any way to imperil the patient's life; on the contrary, the

subsequent course was a remarkably favorable one, even assuming it to be typhoid.

Of the foregoing cases, Case III and Case IV were unquestionably typhoid. Case I was possibly typhoid, but Case II certainly was not. That Case V was typhoid, I do not myself feel absolutely convinced.

The cases were all puzzling, and the responsibilities of decision were great, especially in opposing, at possibly the one favorable moment, an operation for what might well have been a beginning peritonitis. Owing to recent deplorable experiences in delayed operations for appendicitis, I had been impressed by the grave prognosis in certain types of cases, especially in those which presented a good general appearance and a moderate constitutional disturbance, and yet which were extensive general infections—fatal in spite of early operation.

The responsibilities of advising against operation in these cases seem to me greater than those of favoring it, first, because, if there is a mistake in diagnosis, it is much more likely that one is overlooking a case of appendicitis than one of typhoid; secondly, because the dangers of an unnecessary operation in the early stages of typhoid are less than those of a delayed one in general peritonitis.

The environment of the patient may add greatly to the responsibilities. If the question arises in a hospital close at hand, where consultations can be had at any moment, and where the most exhaustive scientific investigations can be made, the policy of delay is unquestionably the best. When, however, the patient lives at a distance, and 24 hours perhaps must elapse from the beginning of bad symptoms to the time of operation, when there is no expert in blood examinations and no bacteriologist to rely upon, one must take chances which under other circumstances he would not take.

In reviewing my experience of the past 10 years one fact is conspicuous—that the disasters in acute abdominal surgery come, not from too early intervention, but from too late. I have opened the abdomen a few times—perhaps half a dozen—when I have found nothing to justify the exploration. Two of these patients died. The experience of these two cases has led me to be, in times of doubt, too conservative. I am positive that these two deaths have been indirectly the cause of other deaths. The shock to a community caused by an unnecessary and fatal exploration is so great that it is almost impossible in that community to convince patients of the necessity of operating in a perfectly plain case. Under such circumstances there is no question that an unnecessary exploration is followed by many deaths from the want of a necessary one.

The chief deduction to be drawn from the foregoing remarks is that one should proceed in doubtful cases with extreme caution; that every means of investigation should be exhausted before sub-

<sup>1</sup> See "A Case of Acute Tuberculosis of the Mesenteric Glands of the Ileocecal Coll; Removal; Permanent Recovery"; published in the Philadelphia Medical Journal of Dec. 1, 1900.



jecting the patient to an operation. In those cases in particular in which the suspicion of typhoid fever is present, the abdomen should not be opened unless the indications are strong. When, in spite of repeated examinations and the greatest care, the surgeon is convinced that typhoid fever is not present, exploration, even if it proves him wrong and shows that typhoid does really exist, loses the sting of carelessness and haste. The blunders that mortify are those which would be unnecessary were the examination painstaking.

### UNNOTICED FRACTURES IN CHILDREN.

BY F. J. COTTON, M.D., AND R. H. VOSE, M.D., BOSTON.

THE title of this paper refers not to the gross errors in diagnosis, which are not common, but to those fractures which may readily be overlooked because of the relative absence of symptoms. Now that fractures are being studied more systematically with the aid of the x-ray, we are in position to confirm what has long been held but insufficiently demonstrated,—that fractures not infrequently exist with but slight symptoms, that mere cracks may readily be overlooked, that incomplete fractures or complete fractures without displacement are commoner than was formerly supposed, and that such fractures may not infrequently exist without being suspected by the patient. That even the physician may overlook them is shown by the not inconsiderable number of cases that come into the public clinics which have already been seen, but apparently not diagnosed, by the family physician.

This overlooking of fractures is especially likely to happen in children, not only because they are less able to be exact in their complaints, but even more because many fractures in children show disproportionately little pain or reaction. Why this is so is somewhat hard to explain. To be sure, the violence producing these fractures is usually not great, and in green-stick and other incomplete fractures there is damage only to a portion of the cortical bone, practically without injury to the periosteum and soft parts; but even if the fracture be complete, the child is often surprisingly tolerant.

It is only when one happens to be seeing a considerable number of injuries in young children that one comes to appreciate that a relative lack of symptoms does not bar out fracture. If this is not borne in mind and a child is brought to the surgeon with the question of injury to a limb which shows no deformity and can still be used fairly freely without any considerable pain, it may readily happen, and does happen, that it be let go without the detailed examination such cases deserve, only to have the existence of the fracture discovered days or weeks later. It is true that such fractures are of minor importance and that the end result is good anyhow, but neglect of fixation usually involves excessive callus formation

and an increasing lameness from attempted use that may be avoided.

It is the belief of the writers that the danger of overlooking these cases lies not in the actual difficulty of diagnosis, but in the fact that the relative frequency of such fractures is not borne in mind, and in our unconscious adherence to the general notion of disability and pain as accompaniments of fracture. There is also a tendency to overlook the relative frequency of complete or incomplete fractures, in children, in which there is little or no displacement and none of the bowing of the classical "green-stick" which most men instinctively expect as the form of fracture especial to children. One of the writers has in a previous note called attention to these forms of "subperiosteal" fracture.<sup>1</sup> They are particularly common in children, and most of the cases to be cited would properly come in this class.

In the subjoined list of cases all questions of doubt were submitted to the skiagraph, but in all cases only after the clinical diagnosis of fracture had been made. In only one case seen by the writers did the skiagraph fail to confirm the clinical diagnosis of fracture.<sup>2</sup>

In examining these patients, even if there be no complaint of pain, there is nearly always some difference in the use of the limb on the two sides or some limitation of range of motion. In some cases this is due to reflex muscular spasm of the same sort as is seen in joint disease. In part, the limitation is voluntary as a result of pain, but in many cases there is only a curious disinclination to use the limb apart from any sign of pain whatever. With a fractured clavicle, for instance, it happens that if the child be asked to raise both arms he lifts one hardly more than half as high as the other, nor can he upon urging raise it any further, though the arm can be moved to the full limit passively without pain or spasm. The same painless or seemingly painless disability is seen in the limp of certain fractures of the tibia, and in the loss of grasp in case of green-stick fracture in the forearm. The writers have seen no explanation of this. It is hard to say whether it is to be classed as a reflex or as a voluntary inhibition—certainly if voluntary it is not necessarily a result of pain consciously felt.

Passive motion in these cases may or may not be painful. If painful, the pain is likely to be only on extreme flexion or extension, etc. In some cases no complaint of pain can be brought out by movement.

On palpation, however, there will always be found a localized tenderness, which may be slight though definite. Sometimes there is deformity appreciable by careful palpation (typical green-stick fractures with deformity are, of course, not likely to be overlooked); now and then we find a wholly unexpected crepitus.

Frequently, where days or even weeks have elapsed, we find a well-defined small (usually ring-

<sup>1</sup> Boston Medical and Surgical Journal, Nov. 29, 1900.

<sup>2</sup> This case, supposed to be a fracture, proved to be a localized periostitis of traumatic origin.

like) callus and local tenderness. Where this condition exists the skiagraph is hardly needful to an absolute diagnosis; where there is only local tenderness with a history of trauma, a diagnosis of probability is justified and may be made with a good deal of confidence.

In the abridged histories of cases<sup>\*</sup> which follow, the records of treatment are omitted; in all cases it was a matter of simple fixation for two to four weeks, and in all cases practically perfect results were attained.

CASE I. A. H., age 4 years. Fell one week ago. Yesterday mother first noticed in lifting the child by the left hand that she complained of pain. Examination showed an obvious callus at the middle of the left clavicle—not very tender—no displacement, but definite crepitus, and on forced manipulation the fragments could be made to move on one another. Evidently this was a subperiosteal complete fracture. All motions of the arm and shoulder carried out by the child without wincing.

CASE II. L., age 1½ years. Fell seven days ago. Mother noticed no immediate disability, but since then the child always cries when dragged by left arm. Child lifts arm to face and uses it fairly freely. There is a transverse midclavicular fracture with freely movable fragments.

CASES III. A. C., age 6 years. Child with hip disease. Supposed to have fallen while in the hospital ward. On reaching home could not use crutches. Twelve days later came to the Out-Patient Department. Diagnosis of "nerve affection" said to have been made by the family doctor. Proved to have an obvious fracture of the clavicle without any considerable displacement; marked callus, no mobility. Disability relatively slight.

CASE IV. W. D., age 1½ years. Fell yesterday out of his brother's arms. Nothing noticed except that child cries as if in pain when lifted. No swelling. All motions can be carried out passively and apparently without pain. Active motion somewhat limited. Over the centre of the right clavicle is a point which is particularly tender and where there seems to be a little thickening. No mobility. Nine days later the callus was increased and definite.

CASE V. P. L., age 4 years. Had a fall, the mother thinks, about four weeks ago; for the last 2 weeks has complained of pain in the shoulder, and the shoulder has been "stiff." No treatment. Examination shows fracture of clavicle near the middle—solid callus the size of a finger.

CASE VI. J. K., age 3 years. One week ago fell out of bed; since then has cried when handled and cried out at times at night. No treatment. Fracture of clavicle at the outer and middle third,—a little displacement of ends,—now firm, but there was evidently a complete fracture.

CASE VII. J. S., age 4 years. Fall of unknown date a few days ago. Has had no treatment. Incomplete fracture a little outside the middle of the right clavicle with marked callus. Little tenderness. Disability only partial.

CASE VIII. G. M., age 3½ years. Fell 4 days ago. No treatment. Complains now of some pain. Incomplete fracture of right clavicle, middle third. Moderate callus.

CASE IX. G. H., age 4 years. Fell 3 days ago. Since then no complaint except when lifted. No treatment. Callus at outer and middle thirds of right clavicle. No crepitus; localized tenderness is moderate. Carries out all motions voluntarily, but the range of motions less on the right. No resistance to passive motion. Neither active nor passive motion painful.

<sup>\*</sup> Seen by the writers at the City and Children's hospitals, and in the x-ray room of the Boston Dispensary, and reported by courtesy of the surgical staffs of these institutions.

CASE X. A. M., age 5 years. Fall 5 days ago. No treatment except rubbing. Has had a little pain, referred to somewhere about the shoulder. Right clavicle shows definite callus in middle. No mobility of fragments.

CASE XI. M. M., age 12-12 years. Three weeks ago fell on the floor. Has not used the right arm freely since. Examination shows a green-stick fracture of both radius and ulna on the right; ether; reduced.

CASE XII. W. B., age 14-12 years. Fell down stairs 4 days ago. No treatment. Apparently no pain or tenderness, but mother noticed that arm was not used as freely as usual. Some swelling of forearm, slight tenderness to palpation, definite green-stick fracture (with outward bowing) of ulna. Reduced without ether.

CASE XIII. R. K., age 1-2 years. Fell on the floor 6 days ago. Now seems to have some pain. Green-stick of both bones of right arm, with bowing outward, at upper and middle third.

CASE XIV. L. M., age 4 years. Fell yesterday and refuses to walk. Will not put left foot down even to stand. No bruise or ecchymosis or swelling. Outlines normal, but point of tenderness marked a few inches above malleolus on tibia. Forcible flexion causes pain, but child will not point out the exact locality. X-ray demonstrates crack or fissure, oblique, and extending through tibia at the mentioned locality.

CASE XV. G. D., age 5 years. Fell yesterday. Child complains of pain on standing or walking. No bruise or swelling. Outline of tibia normal and fibula springs normally under pressure. There is a tender place on tibia 3 inches above malleolus. X-ray shows an oblique crack through tibia at this locality.

CASE XVI. J. C., age 11 years. Three weeks ago a carriage wheel fell on his right foot. Has had no treatment. Has been lame, but has been walking about. Foot swollen, and a slightly tender mass at middle of shaft of right second metatarsal, apparently callus. Walks with moderate limp. Diagnosis of fracture made. The skiagraph showed a complete fracture, with some displacement and much callus. This boy was allowed to walk with felt pads and strapping, and did well from the time of beginning treatment.

CASE XVII. H. C., age 5-2 years. Run over by a wagon 1 week ago. Mother complains that child walks lame. Child insists she has no pain, nor will she admit any tender point, but her evident increase of interest when the foot is pressed over shaft of fourth metatarsal and a slight suspicion of callus at this point suggest fracture. Fracture was demonstrated by x-ray.

CASE XVIII. W. R., age 5 years. Fell 5 feet 2 weeks ago, and walks with stiff and slightly everted foot. No bruise; no pain. Tenderness only when foot is squeezed together. Pain is then referred to middle of foot just below base of metatarsal joint. Nothing felt. X-ray demonstrated a complete fracture, with beginning union, at the base of the third metatarsal.

In addition to these may be noted a fracture of a metacarpal seen at three weeks, an incomplete fracture of the tibia found after one week, and a green-stick of the fibula first presented for examination after three weeks, of which no detailed notes are at hand. All were in young children.

These cases are submitted in the notion that we all tend to underestimate the tolerance of children to fractures. In adults there are not infrequent exceptions to the rule that fractures entail immediate and notable pain and disability; in children it would seem that the exceptions are so numerous as to require modification of the rule.

In small children, where there is a history of a fall or other trauma, and especially where the arm or shoulder girdle may be involved, the only safe way seems to be to assume a fracture as probable, till every inch of bone has been gone over carefully. Only in this way can we be safe from occasional oversights and from ignominious explanations later on.

### NOTES ON X-LIGHT.

BY WILLIAM ROLLINS, BOSTON.

#### VACUUM TUBE BURNS.

THE first report I saw of burning from a vacuum tube was by Hawkes, in *The Electrical Review* for Aug. 12, 1896. He stated that the burns were produced by x-rays. Tesla, in the same journal for Dec. 2, 1896, said they were not due to x-rays but to ozone, and possibly to nitrous acid. In the number for Jan. 5, 1898, I reported that these burns could be produced by electricity when no x-light was present. In the *Boston Medical and Surgical Journal* for Feb. 14, 1901, it was stated that when guinea pigs were protected from all electrical effects they could be killed by x-light without any "x-ray burns" appearing. In the issue for Feb. 28 it was reported that abortion had been produced by x-light. These results were not accepted. That a motion of the ether, of whose existence none of our senses made us conscious, could kill animals was too new and remarkable a fact to be believed. I was told by physicians that guinea pigs were delicate, therefore the experiments proved nothing; that the precautions taken to exclude the participation of electricity in the results were inadequate, that x-light could not kill a cryptogam, therefore it was not probable that it could affect one of the higher animals. Lastly, the pathologist to whom some of the material was given appears to have made no use of his opportunities.

Emerson once said that what was excellent was permanent. These were excellent experiments, therefore I report another of them:

Four strong guinea pigs were used. Two were exposed to x-light under the conditions mentioned in my notes of Feb. 14 and 28, and March 28, 1901, for protecting them from the effects of ultraviolet light, electric induction and convection. The others were subjected to the same treatment and handling, except that no x-light was allowed to shine upon them. By making the exposures shorter than those mentioned in my earlier notes, it was possible to burn the animals before they were killed.

I have, therefore, certainly proved that "x-ray burns" can be produced by x-light when no electricity is present, and by electricity when no x-light is present.

The generator used in the experiments was an influence machine with 16 glass plates, averaging 2 metres in diameter. The speed was 120 revolutions a minute. The tube had an oxygen vacuum. The diameter of the aluminum cathode was 51 mm.

Its mass was 14 gms. Its radius of curvature was 35.5 mm. The target was of the rotary type. It was made of a disk of platinum-iridium 28 mm. in diameter and .28 mm. thick. Its distance from the cathode, unless otherwise stated, was 71 mm. The target was kept red hot with a white hot area where the cathode stream struck. The resistance of the tube with the target at 71 mm. was 14 mm. Fresh oxygen was introduced from a regulator, containing manganese dioxide, when the resistance of the tube rose above 14 mm.

The double Faraday chamber employed to contain the pigs was made of tinned iron, .40 of a mm. thick. The side of each chamber toward the vacuum tube was made of aluminum .26 mm. thick. Air was admitted through iron wire gauze with spaces .70 mm. square between the wires. The gauze was on the side away from the tube.

When a pig was being exposed his nearest side was 14 cm. from the radiant area of the target. It will be observed that before the x-light could shine on a pig it passed through two thicknesses of aluminum, the outer one connected with the earth by a metal wire. It should also be remembered that Tesla and others have stated that a single thickness of aluminum was a complete protection against "x-ray burns." These experiments showed that not only could burns be produced through such a screen, but that animals could be killed by the light after it had passed through two aluminum screens. What an aluminum screen is able to do is to protect from ultraviolet light, from the ether strain surrounding an excited tube, from electric convection, and from whatever rays it can absorb. The following table gives details of the experiment. The weights are gross. To find the net weights deduct the weight of the inner chamber, 357 gms. It will be observed that Pig 2 showed practically no external signs of burning though abortion and death resulted. This illustrates that animals vary in susceptibility to the external action of x-light and warns us to consider these differences when patients are treated by x-light. What may be a harmless exposure to one patient may cause a burn in another. Pigs 3 and 4 were placed in the same Faraday chamber as Pigs 1 and 2, remaining there for the same length of time. They were therefore exposed as long to ozone and nitrous fumes and handled as much, yet they remained in perfect health. All the pigs lived in the same pen, received the same care and food, the latter in unlimited amount. The whole series of experiments showed we had in x-light, after excluding the participation of all other agents in the results, a force of great power, whose action was not understood, whose effects on the tissues were unknown. I failed in my attempt to get a pathologist interested, and as my knowledge of the normal microscopical appearances of the tissues of guinea pigs is insufficient to make my observations worth publishing, I hope some clear-eyed observer will realize that here is a new field where some useful original work can be done.

TABLE SHOWING EFFECTS OF X-LIGHT ON GUINEA PIGS.

No. 1. MALE. EXPOSED TO X-LIGHT IN FARADAY CHAMBER.				No. 2. FEMALE. EXPOSED TO X-LIGHT IN FARADAY CHAMBER.			
Day.	Weight in Grammes.	Length of Exposure, M.	Spark-Length of Tube, Min.	Day.	Weight in Grammes.	Length of Exposure, M.	Spark-Length of Tube, Min.
1	1,078	15	14	1	746	15	14
2	1,033	15	14	2	740	15	14
3	1,045	15	14	3	755	15	14
4	1,047	15	14	4	755	15	14
5	1,012	15	14	5	751	15	14
6	?	0	....	6	?	0	....
7	?	0	....	7	?	0	....
8	1,001	15	14	8	758	15	14
				9	?	0	....
				10	?	0	....
9	?	0	....	11	747	15	14
10	?	0	....	12	772	15	14
11	991	15	14	13	750	15	14
				14	757	15	14
12	990	15	14	15	752	15	14
13	971	15	14	16	769	15	14
14	976	15	14	17	762	20	14
15	982	15	14	18	762	20	14
16	999	15	14	19	763	20	14
17	984	20	14	20	?	0	....
18	975	20	14	21	781	30	14
19	981	20	14	22	765	30	14
20	?	0	....	23	779	30	14
21	994	30	14	24	778	30	14
22	971	30	14	25	781	60	14
23	986	30	14	26	771	60	14
24	964	30	14	27	?	0	....
25	976	60	14	28	777	60	14
26	959	60	14	29	746	60	14
				30	726	90	14
27	?	0	1				
28	980	60	14	31	697	90	2
29	954	60	14				
30	945	90	14	32	667	90	2
31	936	90	2	33	643	90	2
32	908	90	2	34	?	0	....
33	886	90	2				
34	?	0	....				

No. 3. MALE. NOT EXPOSED. CONTROL. No. 4. FEMALE. NOT EXPOSED. CONTROL.

Day.	Weight in Grammes.	Length of Time in Faraday Chamber, Min.		Day.	Weight in Grammes.	Length of Time in Faraday Chamber, Min.	
1	931	15		1	756	15	
2	931	15		2	756	15	
3	920	15		3	772	15	
4	926	15		4	771	15	
5	930	15		5	781	15	
6	?	0		6	?	0	
7	?	0		7	?	0	
8	930	15		8	792	15	
9	?	0		9	?	0	
10	?	0		10	?	0	
11	917	15		11	804	15	
12	945	15		12	830	15	
13	920	15		13	823	15	
14	918	15		14	827	15	
15	918	15		15	827	15	
16	926	15		16	852	15	
17	921	20		17	841	20	
18	909	20		18	850	20	
19	915	20		19	860	20	
20	?	0		20	?	0	
21	930	20		21	893	20	
22	925	20		22	886	20	
23	931	20		23	906	20	
24	932	20		24	908	20	
25	926	60		25	923	60	
26	925	60		26	917	60	
27	?	0		27	?	0	
28	939	60		28	941	60	
29	930	60		29	925	60	
30	932	90		30	941	90	
31	949	90		31	956	90	
32	950	90		32	943	90	
33	953	90	Good health, fine coat, bright eyes.	33	956	90	Good health, etc.

When the spark-length was 2 mm. the target was 35 mm. from cathode. The exposures are given in minutes. Length of spark gap of tube in millimetres.

CASE OF ATTEMPTED CRIMINAL ABORTION IN EXTRA-UTERINE FETATION.<sup>1</sup>

BY W. D. SWAN, M.D., CAMBRIDGE, MASS.

E. B. P., married woman, 25 years old. Had one child living. Was seized with violent pains in the abdomen on the morning of Feb. 9, 1898. She told her husband that on Feb. 7, two days previous, she had visited a certain female physician in Boston who had examined her and introduced instruments into the womb for the purpose of "bringing her round." Her last menstruation was on Dec. 20, or about 7 weeks previous.

She was attended in the afternoon of the ninth by two physicians, who examined and curetted the uterus. She died in the afternoon of the following day.

**Autopsy.**—Sixteen hours after death. Body of a well-formed and well-nourished young woman. Anterior surface and mucous membranes generally pale. Back livid purple, except where subjected to pressure. There was a small discharging sinus on each side of the neck, and enlarged lymphatic glands about them. There was a purple spot on the outside of the left thigh from hot applications. Breasts and nipples small; areolæ pale; abdomen distended; thin, reddish, odorless discharge from the vagina. Vaginal mucous membrane shows small excoriations about the cervix and os uteri; a small old recto-vaginal fistula. On opening the abdomen, the peritoneal cavity was found to contain three pints of dark fluid and clotted blood. Peritoneum everywhere smooth and glistening. The left lung contains a few hard cicatricial nodules in the apex. Other organs contain little blood, otherwise normal.

The uterus and its appendages removed for examination. Dr. W. F. Whitney reports on these as follows: "The specimen consists of the uterus and appendages. The uterus is slightly enlarged, the upper portion of its cavity for a distance of 1½ cm. being covered with a thin soft membrane. The tube on the right side, about 3 cm. from the uterus, has a ruptured swelling from which protrudes a mass of clotted blood and fine filaments. The tumor measures 3 cm. in diameter. The right ovary contains a corpus luteum. On the other side the tube is adherent to the ovary, and covered with a more or less dense membrane."

There was no appearance of sepsis.

The police stood ready, on the completion of my autopsy, to cause the arrest of the female physician mentioned above, if my report warranted it. The direct evidence of a criminal operation having been destroyed by the attending physicians who introduced instruments into the uterus, I reported that death was due to spontaneous rupture of a tubal pregnancy and the resulting hemorrhage, and that there was no evidence of a criminal operation, there being only the unsupported statement of the husband. That ended the case.

If there had been good evidence of a criminal operation the case would have been prosecuted

<sup>1</sup> Read before the Massachusetts Medico-Legal Society, Oct. 2, 1901.

as in a case of normal pregnancy, the crime consisting in the attempt to produce an abortion.

Did the attempt to produce an abortion in this case cause rupture of the existing tubal pregnancy? In view of the fact that the tumor almost invariably ruptures before the end of the twelfth week, from the tubal structures having reached their limit of distention, it would be always difficult to establish the connection from a medico-legal point of view. It seems to me that it is not well to institute proceedings against an abortionist without extremely good and direct evidence. Failure to convict does more harm than good.

### Clinical Department.

#### REPORT OF CASES FROM THE SECOND SURGICAL SERVICE OF THE CHILDREN'S HOSPITAL, BOSTON.

BY H. L. BURRELL, M.D., R. W. LOVETT, M.D., and J. E. GOLDTHWAIT, M.D., BOSTON.

##### I. A CASE OF NOMA.

AGNES H., 3 years old, entered the Children's Hospital on July 20, 1901, with the following history: The family history is not important, although there has been a good deal of illness in the family and another child is now (July 20) ill with pneumonia. In April the child had pertussis, in May, measles, and in June, pneumonia. Since pneumonia, six weeks ago, the mother has noticed a chapping of the lips which disappeared at times. Two weeks ago she noticed a granulation on the gums over the front teeth. Ordinary measures did not relieve this, and the condition got worse with much swelling of the upper lip and left side of the face. The child came to the Out-Patient Medical Room and was sent into the hospital at once for operation. The physical examination showed a poorly developed and much emaciated child, with dull expression and feeble cry. The heart was negative. There were numerous moist râles over both chests. The physical examination was otherwise negative except for the cheek. The left cheek showed a reddened and slightly shiny indurated mass, not perfectly circumscribed, about two inches in diameter and extending nearly to the eye. The left eye was nearly closed. On the left side, in the interior of the cheek, there was a gangrenous patch extending on to the hard palate and perforating it just inside the teeth. This patch extended upward toward the malar bone and was in all about the area of a silver quarter. The odor was very foul and gangrenous. Examination of the throat provoked the characteristic whoop of pertussis which had hitherto been undiagnosed.

Operation was performed immediately. Three teeth on the upper jaw to the left were extracted, and the soft parts between the superior maxilla and the cheek were cauterized with the actual cau-

tery. This was about noon. The child was chloroformed in the afternoon and a gauze wick soaked in brewers' yeast was packed into the cauterized cavity.

The next day the child seemed no worse, but the temperature began to rise. Took nourishment fairly well. Stimulated with brandy.

On the second day after the operation a dark green area to the left of the nose was noticed on the cheek. This was first seen at 4 A.M., but spread rapidly, and at 3 P.M., the time of the second operation, was the size of a quarter of a dollar. The second operation was performed under chloroform anesthesia. The dark green area was excised, allowing a considerable margin, and the wound was again cauterized. The child's condition on the table became so alarming that it was necessary to suspend all operative procedure at once and to resort to artificial respiration, which was kept up for some minutes. One pint of salt solution was given as an intravenous injection, as well as strychnine, and the pulse seemed to improve, but in about half an hour the child collapsed and died. An autopsy was unfortunately not permitted. Examination of the excised tissue showed the infection to be multiple. The Klebs-Loeffler bacillus, was, however, isolated, as well as the pneumococcus.

Fortunately, cases of noma are rare. A remarkable outbreak of noma occurred at the Albany Orphan Asylum.<sup>1</sup> In this epidemic, where destruction was not too extensive, a Paquelin cautery under chloroform arrested the gangrene. The organism isolated was a leptothrix which averaged one-half mm. in breadth and varied from five to twenty mm. in length.

Formerly these outbreaks of noma were fairly common, two notable ones being that which occurred at the Hotel Dieu in 1699, the other that at the Charity Hospital in Lyons in 1796.

A. Z. C. Cressy<sup>2</sup> of Wallington, Surrey, England, reports a case of cancrum oris successfully treated by excision by cautery. In his case the sloughing mass was dissected out from the cheek and a Paquelin cautery was freely applied to the edges and they were brought together by sutures.

H. L. B.

##### II. ELONGATION OF THE TENDO ACHILLIS AFTER OPERATION.

M. B., nine years old, was admitted to the Children's Hospital Dec. 18, 1899, with the diagnosis of bow legs. She had walked at eight months and after that had had pneumonia. After recovery from pneumonia, she did not walk for two years, and at that time the bow legs were first noticed. There was a marked anterior and outward bowing of both tibiae. On Dec. 9, 1899, an osteotomy was done on both sides, and to facilitate proper apposition of the bones, a subcutaneous tenotomy of the tendo achillis was done on each side. Plaster-of-Paris was put on. Dec. 18 she was discharged relieved to her parents.

<sup>1</sup> Journal of American Medical Sciences, November, 1901.

<sup>2</sup> Annals of Surgery, November, 1901.

In April, 1900, it was noticed that she walked on her heels when in a hurry, and was unable to raise herself on her toes. For this reason a diagnosis of nonunion of the tendo achillis was made and she was again referred to the hospital. She was entered July 25, 1901. Dorsal flexion of the foot was present to an abnormal degree, and the child was unable to plantar flex the feet beyond the right ankle with any degree of force. She could walk fairly well if she walked slowly, but if she hurried, the gait was clumsy and largely on the heels. An incision was made and the right tendo achillis was dissected out and found to be very lax. Just above the os calcis it was found to be made up of fibrous bands of varying size. About one-fourth inch of each tendon was excised and the divided ends brought together and sutured with medium catgut. A similar operation was done on the left foot. The wounds were closed with catgut and the feet put up in a position of plantar flexion, leaving the tendon relaxed. At the end of ten days, the plasters were removed and the wounds were found clean. They were reapplied and the child was discharged to the parents on Aug. 9. On Sept. 7 the plasters were removed, and on Sept. 14 she could plantar flex with considerable force. She was given crutches and allowed to walk. On Sept. 28 she could plantar flex her feet with considerable force, but could not yet raise herself on her toes. The same treatment was continued. On Oct. 19 she could raise herself on her toes without any assistance whatever. She was directed to continue the exercise of raising herself on her toes three times daily.

At her second entrance to the hospital, the muscles were examined as to the presence of paralysis by a neurologist and were reported to be normal. The appearance of the tendons suggested that some tearing had taken place at the time of the tenotomy and the appearance was that of a tendon frayed out rather than cleanly divided.

The case is of interest in showing that unpleasant results may follow even tenotomy of the tendo achillis performed under ordinary conditions with proper after-care. The case is also important as showing favorable progress after an operation for the repair of such a condition.

R. W. L.

### III. A CASE OF PROBABLE DISLOCATION OF THE CERVICAL VERTEBRA WITH SPONTANEOUS REPLACEMENT AND RECOVERY.

F. P., seven years of age, was brought to the Children's Hospital Oct. 3, 1900, with the history that while turning somersaults something had suddenly happened, so that since that time the head had been held peculiarly. At that time the head was displaced slightly to one side, and very little motion was possible, either of passive manipulation or active exercise. The muscles were tense, but no one group was contracted more than the others, and the limitation of motion was apparently due to some obstruction other than muscular. There was no paralysis.

The diagnosis at that time was made of a partial dislocation of the cervical vertebra. The child was admitted to the hospital for the purpose of having a radiograph taken and for such manipulation afterwards as seemed indicated. The second day after admission, just previous to the time for taking the x-ray, in some movement of the head with a distinct slip, the normal condition was restored. After that the head could be moved almost normally in every direction with but little discomfort. Two days later the child was allowed up, and three days after that was discharged from the hospital with nothing to show for the condition which had been present at the time of his admission.

It seemed probable to all those who saw the child that there had been partial dislocation, and the result seemed to justify this supposition. Simple muscular strain or any other condition would hardly have been relieved with the suddenness that occurred in this case.

J. E. G.

## Medical Progress.

### REPORT ON PROGRESS IN GENITO-URINARY SURGERY.

BY F. S. WATSON, M.D., AND PAUL THORNDIKE, M.D., BOSTON.

#### ON THE FINAL RESULTS OF CASTRATION IN CASES OF TUBERCULOSIS OF THE TESTES.

HAAS,<sup>1</sup> Bruns Tubinger Clinic, holds that in many cases the disease is primary in the testis, existing independently of its existence elsewhere in the genito-urinary tract or other parts of the organism. This view he supports by interesting data.

The conclusions are derived from the examination or personal communication with 111 patients, on whom castration had been performed for tuberculosis of the testis or testes, and these observations as to the end results were made on individuals at times, subsequent to operation, extending from 3 to 30 years. Of these, 78 underwent single and 33 double castration. In all, the vas was divided high up, but neither the prostate nor the seminal vesicles were included in the operations. The epididymis was involved within 6 months after the first evidence of the disease was noted by the patient in 40% of the cases. The longer the time after the beginning of the trouble, the larger the number of cases in which the epididymis was involved and the more extensive was the involvement.

In only 26% of the cases submitted to castration of one side, did the disease subsequently appear in the other testicle.

In the cases involving one-sided castration, only 9.2% died subsequently from tuberculosis of other parts of the genito-urinary tract, and most of these showed already involvement of the urinary tract at the time of the operation.

Of the cases of single-sided castration 44.6% remained cured.

<sup>1</sup> Beitr. f. klin. Chir., 1901, vol. xxx, part II, p. 345.



In cases of double-sided tuberculosis subjected to complete castration 56.7% remained cured. With few exceptions the single-sided castrations became neither sterile nor impotent. In none of the complete castrations did any nervous or mental disturbances follow.

In the cases in which single-sided castration was done,—one testicle only being affected,—20.7% died within the first 3 years after operation, 9.2% of these being from genito-urinary tuberculosis. Of these 75.7% were well and free from any evidence of the disease, after 3 years following the operation.

Of the cases of double testicular tuberculosis 40.6% (15.6% of them from genito-urinary tuberculosis) died within the first 3 years following complete castration. But 88.2% of cases of double-sided tuberculosis, who survived more than 3 years after the operation, were well, and to be regarded as permanently cured.

The mortality following complete castration is seen to be within the first 3 years subsequent to operation nearly twice as great as that of one-sided castration, but the reverse is true of the patients surviving the 3 years' limit.

The conclusion reached by the author speaks strongly in favor of operative—and early operative—treatment of tuberculous disease of the testis, as compared with the expectant. The text of the article contains further testimony in support of this view.

#### PRACTICAL EXPERIENCE WITH REGARD TO THE DIAGNOSIS AND THERAPEUTICS OF KIDNEY DISEASES.

Kummell<sup>2</sup> refers to the formerly published experiences of the value of the determination of the freezing point of the blood and the urine of individuals for the purpose of deciding—before operations upon the kidneys—the functional capacity of each, in which cases it was found, for surgical purposes, to be useful. Since the publication of the writer's previous communication on the subject he has confirmed the results of the work therein set forth, by 100 additional observations made with respect to the freezing point of the blood and the urine in individuals in health and disease, the urine being drawn separately from each kidney by ureteral catheters. He now considers himself justified in asserting that this proceeding is of the greatest importance and value for the purpose above noted, and one to be relied upon prior to operation—when made in connection with the urea and phloridzin tests. This should not be understood as rendering unnecessary the careful determination of the character of the urinary secretion by the usual methods.

With regard to the freezing point of blood and urine, Kummell calls attention to the following factors: After referring to the phenomena of osmosis between the blood and the urine, he speaks of it in relation to the freezing point of both, saying that of 2 chemically similar fluids—such as these—that one which contains the larger molecular quan-

tity in solution freezes at a lower temperature, as compared with distilled water, than the one having fewer molecules in solution. In health he states that the freezing point of blood is almost constant, being at, or very near to, .56° C. In cases of renal insufficiency it varies between .58° C. to .60° C. There are other conditions—such as abdominal tumors, noncompensated cardiac disease—which alter the relations and which must therefore be taken into account.

With regard to the freezing point of the urine, the physiological variations are much greater than in the case of the blood. Kummell, however, asserts that as a practical matter a freezing point of the urine of .9° C. or less, that is to say, nearly to that of distilled water, may be taken as suggestive of insufficient functional renal capacity as a rule. The greatest service rendered is when the functional capacity of each kidney can be determined separately by the application of the test to the urines drawn from each kidney, this being the essential point with reference to nephrectomy, of course.

With regard to the technique Kummell speaks as follows: It is carried out by means of Beckmann's apparatus, which consists of a glass vessel in which is put a mixture of ice and cooking salt capable of producing a temperature of cold of 4° C. The fluid to be examined is placed in a test tube, in which is immersed the quicksilver bulb of a delicate thermometer divided into hundredths. The glass cylinder is kept in continuous movement by means of a platinum ring on which it rests, and carefully cooled. The freezing point is reckoned at the moment of the beginning of the solidification of the fluid. In case of blood 20 G. is employed, being drawn from one of the veins of the forearm.

In 24 nephrectomies in which the freezing test of the blood and urine indicated that sufficient functional activity of the kidney was present at time of operation, the remaining kidney in all, maintained its full functional sufficiency. Two, in which the test was doubtful, died.

The value of the phloridzin sugar test in determining also the functional capacity of the kidneys—of each one separately if the urine be drawn by ureteral catheters—is further noted by Kummell in this article. Further data are furnished by Küster<sup>3</sup> and Casper<sup>4</sup> upon the freezing and phloridzin tests.

Syms,<sup>5</sup> in the course of an article on the subject of

THE TREATMENT OF PROSTATIC HYPERTROPHY, when referring to the operation of prostatectomy, suggests a novel method of facilitating the removal of the obstructing gland, and at the same time avoiding doing a suprapubic cystotomy as one of the steps usually employed as an aid to the operation. His proposal is to pass through a perineal urethrotomy wound, into the bladder, a rubber balloon attached to a stem which protrudes

<sup>2</sup> Arch. f. klin. Chir., Berlin, 1901, vol. lxxiv, part III.

<sup>3</sup> Arch. f. klin. Chir., 1901, vol. lxxiv, part III, p. 569.

<sup>4</sup> Idem, part II, p. 470.

<sup>5</sup> Journal Cutaneous and Genito-Urinary Diseases, 1901, p. 255.



externally, the balloon being then distended with water, is drawn downward and the prostate is thus forced toward the perineal surface and thus rendered accessible to approach from that point.

#### EXPERIMENTAL RESEARCH WITH REGARD TO INFECTION OF BLADDER FROM THE RECTUM.

Faltin,<sup>6</sup> in the course of the above communications, describes the manner in which he conducted numerous experiments upon rabbits with a view to testing the accuracy of the work of previous experimenters and of adding further knowledge to the subject of the invasion of the bladder by rectal bacteria — more especially the *communis coli*.

The main features of the experiments were the observation of the invasion of the bladder, by rectal bacteria, after wounds of varying severity inflicted upon the rectal mucous membrane, and the artificial infection of the same, under the following conditions: (1) A complete closure of the anus by ligature; (2) by complete closure of the urethra by ligature of the penis; (3) without either of the above.

The conclusions arrived at were as follows:

(1) Closure of the rectum by anal ligature, if not continued beyond 36 or 48 hours, is not, as a rule, capable of causing a general invasion of the organism by rectal bacteria.

(2) If the obstipation so caused be continued sufficiently long, however, the rectal bacteria do make their way into the general circulation, either directly or through the peritoneum. An excretion of the bacteria by the kidneys under these conditions is possible, but only occurs as a step preceding death in the cases ending fatally.

(3) After sufficient duration of the artificially produced obstipation direct passage of the rectal bacteria into the bladder from the rectum may occur. When this is the case, however, the whole organism is usually in such a condition that death ensues subsequent to the bladder invasion owing to the further propagation of the bacterial poison from the rectum or the already infected bladder.

(4) In a certain number of cases the bacteria may find an entrance through the urethra; in others, more directly through the lymph channels into the bladder.

(5) If urinary retention caused by ligature of the urethra is present at the time of infection, the rectal bacteria will more readily penetrate to the bladder, and will produce cystitis.

The conclusions stated at the end of the first article are these: After a rectal lesion at the level of the prostate, whether it be severe or moderate, neither a cystitis nor invasion of the bladder by rectal bacteria takes place, unless at the same time there occurs a fatal general infection, or peritonitis, as a result of the original infection from the rectal lesion. When this happens an excretion of rectal bacteria by the kidneys, and the setting up of a cystitis thereby, is also seen to take place. If the bladder has been previously

injured it much more frequently happens that there is an invasion of it by the rectal bacteria and that cystitis results.

#### ANATOMY AND PHYSIOLOGY OF THE PROSTATE.

Walker,<sup>7</sup> in an elaborate and carefully prepared paper, based upon experimental studies of the prostate in man and in various animals, chiefly dogs, makes various anatomical and physiological conclusions which are here appended:

*Anatomy.*—(1) The prostatic muscle is derived from the longitudinal coat of the urethra and the circular layer of the bladder.

(2) Every lobule is surrounded by a circular and a longitudinal coat, so arranged as to expel quickly and forcibly the secretion.

(3) The prostatic muscle of the full-grown animal is independent of both urethra and bladder, and is only indirectly in connection with either.

(4) The muscle is not so disposed as to compress the urethra, or to act as a sphincter to the bladder.

(5) The connective tissue is found in nearly the same amount as in other secreting organs; and is amply sufficient to give all the needed support to the gland, independent of the muscular elements.

(6) A *membrana propria* is present in all cases, and consists of very fine connective-tissue fibres. There is a sheath of longitudinal elastic fibres around the prostatic urethra, from which the outer fibres diverge around the prostatic ducts in a figure-of-eight manner, and thence onward into the glandular substance.

(7) In the gland substance a rich elastic meshwork is seen lying under the cells, with a few extremely fine fibres in the *membrana propria*.

(8) The glandular substance forms about five-sixths of the organ.

(9) The cells are disposed in one layer; tall, columnar shaped; have a large amount of protoplasm, and a well-defined nucleus. In the same lobule areas are present where the cells are entirely inactive.

(10) Adenoid tissue is scattered at irregular intervals throughout the gland.

Regarding the so-called third lobe, the writer apparently agrees with previous observers in declaring that it is only occasionally present, and does not deserve the name of a third lobe.

*Anatomical deductions.*—(1) The *verumontanum* does not prevent the entrance of semen into the bladder.

(2) The semen is prevented from passing backward into the bladder by the contraction of the so-called sphincter of Heule.

(3) The prostatic ducts are so arranged that they eject their fluid directly into the outpouring testicular secretion, thus producing a homogeneous mixture.

(4) The longitudinal fibres of the sphincter membranaceæ urethræ dilate the outer half of the membranous and a portion of the bulbous, urethra,

<sup>6</sup> Centrbl. f. die Krank. der Harn u. Sexual Organe, 1901, Bd. xii, H. 8 and 9.

<sup>7</sup> Johns Hopkins Hospital Bulletin, October, 1900.

and by this means draw the semen from the prostatic portion.

(5) During the last act of ejaculation the orifices of the prostatic and ejaculatory ducts are closed, and their respective fluids put on much tension, so that at the moment of relaxation, a sufficient quantity of semen is poured in for the next emission.

(6) The sphincter membranaceæ urethræ aids, not only in carrying the semen along the urethra, but helps very materially in expelling it.

(1) *Physiology*.—The immediate production of the motility of the organisms (spermatozoa) is induced by a thinning of the testicular secretion with the prostatic juice.

(2) The continued movement is most probably kept up by substances in the prostatic fluid, that either act as stimulants or as food for the organisms.

(3) Unless a homogeneous mixture is made, thick portions remain, where there is no movement.

(4) It therefore follows that as the dog has no seminal vesicles, and the gland of Cowper is very insignificant, the function of furnishing a fluid, in which the spermatozoa can freely move, belongs entirely to the prostate gland. It then becomes apparent that the organ is almost as important as the organisms themselves.

#### GONORRHEAL ULCERATIVE ENDOCARDITIS.

Lartigan,<sup>8</sup> the author, adds one more to the very small number of cases of this rare complication of gonorrhea. The case with autopsy is carefully reported, the bacterial findings being as follows: *Gonococcus* present in the heart's blood and valvular vegetations; colon bacillus in the liver and gall bladder and urinary bladder. Other organs were sterile.

The author concludes:

(1) Gonorrheal urethritis may be the starting point for a fatal septicemia induced by a pure infection with the gonococcus.

(2) Endocarditis and arthritis are occasional complications of such an infectious disease.

(3) The endocardial processes may be incited by the gonococcus without the association of other organisms.

#### RELATION OF THE PROSTATE GLAND TO THE IMPREGNATING POWER OF THE SPERMATIC FLUID.

George Walker<sup>9</sup> reports a series of experiments in which the prostate gland was removed from a number of white rats, and the effects of this procedure noted. His conclusions are as follows:

(1) That a removal of the anterior lobes of the prostate gland in rats has no effect on breeding; but in a certain number it diminishes the fecundating power; and in a small number it is destroyed entirely.

(2) Complete excision has a very marked effect on fecundity, reducing it to almost nil when the gland is entirely removed.

(3) Partial or complete removal of the prostate has no effect upon the sexual desire and capacity.

(4) Complete removal of the gland in the adult animal has no effect on the histological structure of the testicles. Complete removal of the prostate in the young animal has no effect on the histological structure of the testicles. Complete removal of the prostate in the young animal has no effect upon the subsequent development of the testes.

#### CONDITION OF THE KIDNEYS IN PHTHISICAL PATIENTS.

D'Arrigo,<sup>10</sup> after collecting the kidneys of a large number of patients who had died of pulmonary tuberculosis, was able to make a careful study in 12 cases. He says that:

(1) In the kidneys of tuberculous persons, in the mild as well as severe forms, there are invariably present alterations in the vessels in the interstitial substance and in the renal epithelium.

(2) In the early stages of pulmonary tuberculosis the lesions in the kidney are not severe, and seem to be due to the passage of the toxin through them. This tuberculous toxin attacks the vessels first, then the interstitial connective tissue and the epithelium.

(3) If the tuberculous process in the lungs increases, in addition to the toxins, the tubercle bacilli are carried to the kidneys and there form colonies.

(4) The circulatory and functional disturbances of the kidney which are caused in the beginning by the toxin, facilitate the later colonization of the bacilli in the kidneys. In this manner the kidneys became a *locus minoris resistentiæ*.

(5) How the bacilli reach the kidney it is difficult to state, though it must be through the circulation. The bacilli were found in most cases in the glomeruli and in the interstitial connective tissue, but never in the blood vessels or in their walls. These cases must not be confounded with acute miliary tuberculosis.

#### RELATION OF PROSTATE TO TESTES.

Walker<sup>11</sup> reports a series of experiments in which he removed the testicles from a number of dogs and then injected half of the number with a testicular fluid, the preparation of which he describes with careful detail, keeping the remaining animals as controls for the companion. At the end of about six months the animals were all killed and their prostates removed and studied with this result: The prostate gland in the injected animals presented both macroscopically and microscopically the same changes that had occurred in the uninjected ones. It may therefore be said that the injections of the testicular fluid had apparently no effect whatever, and one is probably justified in concluding that the atrophy of the gland is in no way connected with the absence of any substance in the testicular secretion.

<sup>8</sup> American Journal of the Medical Sciences, January, 1901, p. 52.

<sup>9</sup> Johns Hopkins Hospital Bulletin, March, 1901, p. 77.

<sup>10</sup> Centrbl. f. Bakteriologie u. Infekt. Krank., Sept. 4, 1901.

<sup>11</sup> Johns Hopkins Hospital Bulletin, December, 1900.

# NEW OPERATION. A METHOD OF PERFORMING EXTERNAL URETHROTOMY WITHOUT A GUIDE.

P. R. Bolton's<sup>12</sup> description of his operation and his idea of its applicability follow:

The patient may be placed in the lithotomy or knee chest position.

A curvilinear transverse incision is made across the perineum, the convexity looking forward or backward and the tendinous centre of the perineum exposed. The attachment of the sphincter ani to this point is divided and reflected, and the triangular ligament thus exposed incised transversely. The anterior fibres of the levator ani passing beneath the prostate to the rectum now come into view. These, together with the rectum, are next pushed backward and the prostate exposed. The exposed surface of the prostate is now cleaned and its apex identified.

No harm can accrue from incision into the floor of the prostatic urethra anterior to the verumontanum, and incision made into this part of the prostate is sure to enter the urethra behind its point of stricture.

The anterior quarter inch of the apex of the prostate is accordingly incised longitudinally in the median line, the urethra opened and the incision then prolonged forward as far as desired, guided, if necessary, by a probe or director suitably bent and introduced into the urethra from behind forward.

This method, while a little more elaborate than the original Cock operation, appeals to me as rational and not necessarily difficult. It will be found most useful, I believe, in recent ruptures of the urethra and in strictures uncomplicated by extravasation of urine, or perineal abscesses. I should hesitate to make use of it in the presence of infectious inflammations or necrosis of the perineal tissues, because of the larger wound surface unavoidably exposed to infection and the risk of carrying infection to the cellular tissue between the rectum and bladder above the triangular ligaments.

## RARE AND INTERESTING CASES.

(1) Two cases, in each of which an old extra-uterine pregnancy had ruptured into the bladder and gave rise to symptoms which led to a suprapubic cystotomy.<sup>13</sup>

(2) A rare case of cancer of the prostate when the autopsy revealed metastases in the joints, inguinal glands, abdomen, mediastinum and neck.<sup>14</sup>

(3) A case of colloid cancer in an exstrophied bladder.<sup>15</sup>

(4) Herczel<sup>16</sup> describes 2 cases of spontaneous discharge of vesical calculi. The first being that of a woman in whom a very large vesical calculus made its way into the vagina by ulceration, from which it was removed and the lesion was re-

paired by a plastic operation. The second case was that of a man from whose bladder a calculus 8 cm. long worked its way into the rectum by ulceration.

## SUMMARIES OF CASES.

(1) *Renal tuberculosis*.—Simon<sup>17</sup> affirms that of 35 cases of renal tuberculosis operated in the Heidelberg clinic, 25 were women and 10 were men. Nearly all were between the ages of 20 and 40 years, there being only 3 patients under 20 years, and only 4 patients over 40 years of age. There were perinephritic involvements in 9 cases, ureteral involvements in 13 cases, and bladder involvements in 8 cases. In only 3 cases was the kidney on the opposite side diseased. The tubercle bacillus was found in 27% of the cases.

(2) *Two hundred and six operations for stone*.—Adams<sup>18</sup> says that most of the cases (over 75%) were operated upon by lithotripsy. The author's summary is as follows:

Lithotomy was performed only when the crushing operation was considered impossible or inadvisable. The contra-indications to lithotripsy in boys are:

(1) When there is marked cystitis, lithotomy drains the bladder and cures both diseases.

(2) When there is much difficulty in passing instruments.

(3) When the stone is too large or too hard for the necessarily small instrument.

(4) When there are indications of advanced kidney disease or great debility, the shock of the cutting operation seems less severe probably because it is shorter. In men the contra-indications are: (a) When the instruments cannot be passed. (b) When the stone is too large and cannot be grasped.

He has never found a stone too hard for the lithotrite. In tight strictures perineal section serves both for the stricture and the introduction of the crushing instrument.

## Recent Literature.

*The Mental State of Hystericals. A Study of Mental Stigmata and Mental Accidents.* By PIERRE JANET, Litt.D., M.D. Translated by CAROLINE ROLLIN CORSON. Pp. xviii-535, 8vo, with 12 illustrations. New York: G. P. Putnam's Sons. 1901.

In 1894 Janet published, in two charming little volumes, the work which has now appeared in an English translation. In this work the author elaborated and re-enforced the theories which he had advanced in his earlier work, "L'Automatisme Psychologique," in regard to the nature of the morbid phenomena of hysteria, that "hysteria is a form of mental disintegration characterized by a tendency toward the permanent and complete un-

<sup>12</sup> Journal Cutaneous and Genito-Urinary Diseases, June, 1901.

<sup>13</sup> S. Hue: Bull et Mém. de la Soc. de Chir. de Paris, T. xxv, p. 720.

<sup>14</sup> S. Atanasijevic and E. Mikel: Centrbl. f. die Krank. der Harn u. Sexual Organe, 1901, Bd. xii, H. 6, p. 335.

<sup>15</sup> E. Ehrlich: Beitr. zur klin. Chir. 1901, Bd. xxx, p. 58.

<sup>16</sup> Centrbl. f. Krank. der Harn and Sexual Organe, June 15, 1901.

<sup>17</sup> Beitr. zur klin. Chir., 1901, Bd. xxx, S. 1.

<sup>18</sup> British Medical Journal, 1901, p. 1259.

doubling (*dédoublement*) of the personality." In these works Janet demonstrated more fully and completely than had before been done that the various hysterical symptoms were due to abnormalities of the mental state,—that sensations actually reached the brain, but that they were in part ignored by the patient, owing to a limitation of the field of consciousness. In this way he explained many anomalies and peculiarities of the hysterical phenomena which had previously seemed contradictory and had often caused the hysterical patient to be regarded as a bare-faced simulator. Since the publication of these works Janet's theories have been confirmed by the observations of many independent investigators both in Europe and America. The present translation, combining in one volume the two volumes of the original, renders the work accessible to all interested in psychology or neurology who are unable to read French. The work of translation has been satisfactorily done, and it has a pathetic interest from the fact that the translator died before the work could be put in type.

*A Treatise on Medical Jurisprudence.* Based on Lectures Delivered at University College, London. By GEORGE VIVIAN POORE, M.D. (Lond.), F.R.C.P., Professor of the Principles and Practice of Medicine, University College (Lond.). With illustrations. New York: Longmans, Green & Co. 1901.

This book has an undeniable charm which will make it very popular. Its exceedingly attractive style is explained by the fact that the author has assumed a quaint and unconventional mode of appealing to his readers as to a greatly enlarged, eagerly interested class of medical students listening to his lectures. Thus the colloquial manner has taken the place of the purely didactic and the result is altogether attractive. It is as if the author, speaking from a wide experience as a medical jurist, addressed his readers individually upon the most familiar terms. Legal medicine with such a teacher presents no excuse for suffering neglect. The driest technical details are not permitted to be dull, and the reader's attention is again and again caught and fixed by some homely phrase or quaint aphorism which rivets the desired lesson firmly in the memory. Apt illustrations and convincing cases are used with intelligence and effect, and the whole book is so full of an irresistible charm that the reader lays it down reluctantly.

Nevertheless, the discriminating student, freely admitting that he has before him a delightful volume on medical jurisprudence, asks if the author has done full justice to all his topics. There is in many of the chapters, especially in the latter half of the work, an impression of incompleteness, a suggestion of want of thoroughness, that is disappointing. The author touches many themes lightly without any sufficient elaboration of them. Whatever is done is admirably done, so far as it goes; but one misses essentials which would be expected in a work meriting the title "Treatise."

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### THE THIRTY-SECOND ANNUAL REPORT OF THE STATE BOARD OF HEALTH OF MASSACHUSETTS.

THE Massachusetts Board of Health Report for the year 1900, with its 915 pages, is a model of conciseness, covering the great range of sanitary investigation and routine work which we have come to expect each year.

The larger death-rate for 1900, as compared with the previous 3 years, although much less than the average for 10 years, is due largely to a greater prevalence of infectious diseases. But the decrease in these diseases for a long period of years is satisfactory evidence of good work in the State, the death-rate from consumption alone being considerably less than half what it was 50 years ago, and from typhoid fever the improvement being especially notable. The 209 cases of smallpox in 1899 and 1900, with 17 deaths, furnish the usual proof of the value of vaccination, and gave occasion for two circulars of information on smallpox and vaccination from the board, which would have prevented the present prevalence of this disease if the board's advice had been followed.

The sanitary statutes reported as enacted are: Requiring the State Board to examine and report annually upon all main sewer outlets in the state, and upon their sewage disposal, with recommendations; that the business of killing and rendering animals should be licensed each year, with a nominal fee for the license; prohibiting the taking of oysters and other shellfish from contaminated waters; providing hospitals for smallpox and other dangerous diseases; prohibiting the sale and manufacture of fabrics and papers containing a certain percentage of arsenic; authorizing cities and towns to take waters for emergency use; prohibiting the sale of articles of food and drink which contain antiseptics; requiring labels on certain articles of food and drink.

Of the more than 600 pages devoted to a most thorough study of water and sewage, 100 are given to the action of the board in reply to requests for information and advice from cities and towns and boards and corporations. Then follow papers containing full analyses and elaborate tables on examination of water supplies; on examination of rivers; on water supply statistics; on filtration of sewage; on filtration of water; on the action of water upon metallic or metal-lined service pipes; on the retention of bacteria in ice when ice is formed under different conditions; on the efficiency of water filters; on the examination of spring waters; on the consumption of water in cities and towns in Massachusetts.

Under the laws providing for the inspection of food and drugs, 10,122 samples were examined during the year, including 6,232 of milk, with the result of 94 prosecutions and 89 convictions, involving fines of \$1,890.70.

There were 53,389 packages of diphtheria antitoxin, of 1,500 units each, issued to cities and towns; and 5,173 cultures were made for diagnosis of diphtheria. The examinations for diagnosis of tuberculosis were 746; 76 specimens of blood were examined for malaria infection and 62 for typhoid fever.

There were 32,615 notices of cases of infectious diseases received and recorded during the year.

Of 157 samples of paper and woven fabrics examined for arsenic, 34 were found to contain it, but only 7 in quantities beyond the limit allowed by law; and of 186 samples of dress goods, 81 contained arsenic, of which 27 had amounts beyond the legal limit.

In an exhaustive study of cancer by Dr. W. F. Whitney the conclusion is reached that the great increase in cancer, as shown by the mortality returns, is apparent rather than real, due to better diagnosis and to registration less inaccurate.

The statistical summaries of disease and mortality are at present incomplete in many essential details, but they are of value and perhaps chiefly as the possible beginning of placing that important subject where it belongs, wholly in the hands of the State Board of Health. Under the board's skilful management the subject of vital statistics might be made a credit to the State, as it unfortunately is not now, and of very much greater practical use.

#### OUT-PATIENT DEPARTMENTS.

AN out-patient department has apparently come to be an essential part of a large municipal hospital. From the small dispensary of not many years ago, occupying, perhaps, one or two rooms, there has developed at many of our larger hospi-

tals an elaborate system for the treatment of ambulatory patients, which bids fair to show even greater elaboration in the near future. This is as it should be. The positive value to the community of such out-patient departments can hardly be overestimated, and this is increasingly the case as time goes on. We are, as a profession, finally waking up to the fact that very much may be done for the relief and possible cure of chronic conditions which a decade or two ago were placed in the hopeless class as quite beyond the reach of medical aid. Examples of this are the growth of orthopedic surgery and the coincident gradual disappearance of the deformities of Pott's disease, or the systematic training of ataxics in co-ordinative movements. It would be easy to multiply instances from all fields of medicine, but our purpose merely is to indicate that with the growth of medical knowledge the out-patient department should be given a place of dignity which has never yet been granted it. We do not for a moment mean to imply that these departments in the past have won for themselves such a position; they have too often been regarded merely as stepping-stones to higher things for that, and the work in them, partly from necessity, and partly from indifference, has too often been devoid of the scientific spirit. Fortunately, the aspect of things is now beginning to show a change; there are indications that the out-patient departments are gradually coming to be considered as ends in themselves as well as means to a usually distant goal. This has been brought about, in great measure, by the increasing limitations placed upon so-called house-patients. For obvious reasons chronic diseases cannot be, and in many cases it is neither necessary nor desirable that they should be, treated in the wards of a general hospital; they must be treated somewhere, however, and well treated by the most approved modern medical and surgical methods. This is the opportunity of the out-patient department of the future — to develop well-equipped and well-managed departments for the best treatment of that growing class of patients who find no welcome in the hospital wards. The coughs and colds and trivial accidents of everyday life will, of course, still be treated, but the claim to distinction and wide recognition which the out-patient department should make in the future, is in the widening of its scope of work to include the ramifying branches of medicine, which are now constantly forcing themselves upon our attention. In such a well-organized department specialism should be seen at its best, and the contact between men working in special fields should be close and constant. All this, no doubt, the future has in store for us.

To be well conducted such an out-patient department must be adequately housed; patients and physicians alike must have sufficient space for carrying out detailed examinations. This pressing demand also seems likely of realization. In Boston, for example, both the City and Massachusetts General Hospitals are projecting new and spacious buildings for the work of the out-patient departments. This should mean not only improved facilities for work, but also a constant improvement in the character of the work done. The ultimate position of this important branch of a great hospital in the estimation of physicians at large must depend wholly upon this last factor.

#### MEDICAL NOTES.

**SPINAL COCAINIZATION.**—Occasional deaths continue to be recorded from time to time as the result of anesthesia by means of intraspinal injections of cocaine. Dr. Legueu, of Paris, related 2 instructive cases before the French Society of Surgery a few days since. The first victim was an elderly man, who had ruptured the tendon of the triceps. Less than a third of a grain of cocaine was injected, but 10 minutes later he became agitated, and died in 2 or 3 minutes afterwards. A few weeks later a man 61 years of age, with strangulated hernia, was subjected to a similar injection, and even before anesthesia was complete, respiration became labored, the pupils dilated, and death ensued. The moral to be deduced from these cases is that when the condition of the patient contra-indicates the administration of chloroform, resort to spinal cocaine does not minimize the risks. It would seem, too, that in some of these cases local anesthesia would have answered every purpose without placing the life of the patient in jeopardy.—*Medical Press.*

**APPROPRIATIONS FOR MEDICAL INVESTIGATION IN GERMANY.**—The German Imperial Home Office is reported to have appropriated 12,000 marks for research on protozoa and 150,000 marks for investigations on tuberculosis.

**A CONGRESS ON PELLAGRA.**—A national Italian Congress on Pellagra is announced for May, 1902. Papers will be presented regarding etiology, treatment, and means of prevention.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Jan. 8, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 27, measles 128, typhoid fever 9, smallpox 35.

#### NEW YORK.

**STATE HOSPITAL FOR TUBERCULOSIS.**—In regard to the State Tuberculosis Hospital the governor says: "The commission designated by the legislature has selected a site, and work upon this important undertaking will be begun in the spring. . . . Perhaps no work yet undertaken by the State presents so many serious aspects as does this. It has been estimated that there are 65,000 persons in the State of New York who are afflicted with tuberculosis. It is our duty, of course, to furnish every protection possible for the health and happiness of our citizens. This departure, however, may lead to the establishment of other institutions for which the State may be called upon to provide, and for which there may be the same claim advanced as by those who are stricken by this terrible scourge. A policy should therefore be defined. Hopeless cases should not be received, and every locality should be interested to the extent of preventing the admission of incurables to the hospital. This can only be done when each locality is interested through the expense which it may incur in the treatment of these cases. The policy of the State, therefore, should be to provide accommodations and to assess upon each county the actual cost for maintaining each patient from such locality, and it should be so enunciated by the legislature. This would prevent the bringing into the hospital of incurables and the creation thereby of an excessive tax, which could not be justified. A proper physical certificate should be provided for and the power to designate competent physicians for this purpose in each county should be placed in the board of supervisors of counties or the common councils of cities. Recommendation is hereby made for such legislation."

**COSTLY CARE OF INSANE.**—In his annual message, presented at the opening of the legislature's session at Albany, Governor Odell calls attention to the unnecessary expense incurred by the State in the care of the insane. For hospital construction and furnishing, the law now restricts the per capita cost to \$550; but, while this is an improvement on earlier conditions, he maintains that it is still too great. Since his personal inspection of the State hospitals last summer, plans have been adopted for additions to the hospitals at Gowanda and Rochester on more conservative lines, as a reduction in the per capita cost of nearly \$100, which, on the number of inmates to be taken care of in these buildings, will effect a saving of nearly \$150,000. The impression one gains on visiting the institutions for the insane, he says, is the duplication of administrative and executive powers so repugnant to sound business judgment. After

going into some details he recommends that for the present boards of managers there be substituted a visiting board for each district, to be appointed annually by the governor, and to report to him; and that the powers now vested in the boards of managers be lodged in the State Commission in Lunacy, thus centralizing all authority in a commission which has been constitutionally created, which precedent has decreed must be nonpartisan, and which is remunerated for the services performed.

**RECORDS OF BUREAU OF VITAL STATISTICS.**—An effort is to be made by the new president of the Board of Health to secure the safety of the records of the Bureau of Vital Statistics, which are now kept in a room on the third floor of the building on Sixth Avenue which was leased for the department in 1899 for 10 years. For some time past most of them have been filed in metal boxes, but the protection against loss by fire is not regarded as at all adequate. Back to 1873 the marriages, births and deaths are indexed, and between 1873 and 1853 the statistics are complete, as filed by the month. With small intervals of blank pages, they go still further back, to 1847, when the records of marriages and births cease. The deaths, however, are recorded as far back as 1800, and on the death certificate of Alexander Hamilton, in 1804, the following remarks are set down: "Fell in a duel with Col. Aaron Burr near Wehawk, N. Jersey, on the morning of the Ninth of July; interred at the expense of the Corporation of the City of New York." As many as 250 transcripts, it is stated, are made from the records each week, principally for the use of lawyers, as the bureau has come to be a most important adjunct to the machinery of the courts.

**BOARD OF HEALTH.**—The first meeting of the new board of health in New York, consisting of Health Commissioner Lederle, president, Police Commissioner Partridge, and Health Officer Doty, was held Jan. 2. One hundred and fifty-seven persons were dropped from the pay-rolls. Dr. H. M. Biggs was appointed medical advisor to the board, and the Medical Advisory Board, consisting of twelve physicians, to serve without salary, was named. The new names on this board are: Drs. E. G. Janeway, J. D. Bryant, W. M. Polk, A. Jacobi, L. E. Holt, F. P. Kinnicutt, A. A. Smith and J. W. Brannan. Dr. Joseph H. Raymond was appointed sanitary superintendent in Brooklyn, in place of Dr. Robert Black, resigned, and Dr. Edward F. Hurd sanitary superintendent in the borough of the Bronx, in place of Dr. Eugene Monaghan, resigned. Joseph A. Deghues Ph.D., heretofore chemist's assistant, was appointed chemist to the board.

**IMPROVED AMBULANCE SERVICE.**—The hospital work in the borough of the Bronx has been improved by the establishment of an efficient ambulance service at Lebanon Hospital, which is situated midway between the Harlem and Fordham hospitals, which have hitherto had the entire Bronx, a very large district, to care for. Lebanon Hospital is a semipublic institution, partly supported by city funds.

**CENTENARIAN.**—Almon Streeter of Rensselaer Falls, N. Y., the oldest inhabitant of St. Lawrence County, died Dec. 31 at the reputed age of 107 years.

### Miscellany.

#### SMALLPOX AND LIGHT.

JOHN OF GADDESSEN's method of treating the smallpox in the King of England's son is well known. But what is less generally known is the fact that the treatment of the disease by wrapping up the patient in red clothing and surrounding his bed with red hangings still survives in various parts of the world—in Roumania, Japan and Tonquin. In 1832 Picton obtained good results, in so far as subsequent scarring was concerned, by keeping patients in obscurity. In this country, Black, Waters and Barlow recorded similar results. Finsen came to the conclusion this was really due to cutting off the chemical rays. He therefore advocated the use of deep red glass, which does not allow the passage of actinic rays; artificial lights used in the rooms or wards were also to be protected by deep red globes. The various rules laid down by Finsen were practised by Lindholm and Swendsen of Bergen, who published their results, which were very favorable, in 1893. They were confirmed by Feilberg, Strandgaard, and by Cettinger in France, but Juhel-Renoy found that the method only succeeded in very discrete forms of the malady, which got well of themselves. This unfavorable opinion was combated by Péronnet, who criticised Juhel-Renoy's treatment as incomplete, and not in accord with Finsen's rules. Courmont, of Lyons, has since tried the red light treatment with negative results. This is confirmed by an eye-witness, Bayle. One lesson learned at Lyons was that the red light was very trying both to the patients and the attendants. The former, four women, became much excited and repeatedly asked to be placed in the ordinary light of day; and the latter were unable to go on with their duties without blue spectacles. This peculiar influence on the mind of those working in red light has been observed among the employees of the firm of Lumière of Lyons. The rooms where photographic plates and papers were handled were illuminated by red light, and it was not unusual to find some of the workmen laboring under great mental excitement. But since



green light, which also stops the actinic rays, has been substituted for red, such cases no longer occur. This peculiar disturbing effect of red light has been confirmed in the case of variola patients by Oleinikoff. Several said they preferred the scarring to being confined in the red light; some also became delirious and had terrifying hallucinations. In confluent smallpox, however, delirium is not uncommon. Perhaps the substitution of green light for red would answer, but this is a matter for experiment. The reader interested in the subject will find further details in Dr. Finsen's paper in the *British Medical Journal* of Dec. 7, 1895, p. 1412, and references to the more recent literature of the subject in Dr. Bayle's Lyons thesis entitled "Contribution à l'Etude de la Photothérapie (1901)."—*British Medical Journal*.

### SANITARY ASPECTS OF THE PANAMA AND NICARAGUA CANALS.

In an article on this subject<sup>1</sup> Mr. George A. Soper, of New York, reaches the following summary of conclusions:

(1) Both the Panama and Nicaragua routes pass through a country which is extremely unfavorable to health.

(2) The climate of Nicaragua and Panama differ chiefly with respect to rainfall, the precipitation on the Panama route being distinctly the less unfavorable to health.

(3) Considerations of soil, topography and the nature of the engineering work to be done are in favor of Panama. Fewer men would be required; they would be concentrated and, hence, their health could be more easily protected.

(4) There is practically no difference in the nature of the diseases to be anticipated, nor in the precautions to be taken to protect health in either case.

(5) After construction, the difficulty of controlling health conditions along the line would be greater on the Nicaragua route.

(6) The shorter Panama route would cause passing vessels to be exposed to the possibilities of infection for a much briefer interval. The danger of communicating diseases to and from the Isthmus is fairly represented by the difference in time which it would take ships to pass from ocean to ocean by the two routes.

(7) The likelihood of the canal becoming a disease focus, thus interfering with commerce, by requiring all healthy ports to quarantine against ships passing the Isthmus, is much greater in the case of Nicaragua than Panama.

(8) Although the Panama health records are much darkened by heavy losses of life by disease, this is not to be construed as evidence of the existence of conditions favoring a greater immunity from sickness along the Nicaragua line. More lives have been lost at Panama because more lives have been unnecessarily exposed. The experience of Panama is to be taken as a warning of conditions which are liable to be repeated on either route.

(9) Whichever canal is selected, extraordinary care will be required to maintain satisfactory health conditions during construction and after completion of the work.

(10) Plans and preparations in detail for the organization of the efficient sanitary and medical department should be made as early as possible so that the measures necessary for the prevention of disease may be carried on in harmony with the engineering projects.

<sup>1</sup> The Medical News, Jan. 4, 1902.

### METEOROLOGICAL RECORD

For the week ending Dec. 28, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity			Direction of wind		Velocity of wind		Weather		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.		
S...22	30.20	20	29	10	71	66	68	W	W	S	E	3	10	C. O.	T... .04 81
M...23	29.89	34	40	29	70	74	72	S	W	S	E	12	4	O. O.	
T...24	29.65	38	41	35	100	66	83	S	W	W	W	12	20	R. C.	
W...25	29.90	36	38	34	74	81	78	S	W	W	W	8	8	O. C.	
T...26	30.20	36	42	30	70	64	67	S	W	S	E	11	9	O. C.	
F...27	29.94	36	40	32	100	69	84	N	N	N	N	11	14	R. C.	
S...28	30.32	36	41	31	78	74	76	N	N	S	E	3	12	F. O.	
☞	30.01		39	29			75								

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall. Mean for week.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, DEC. 28, 1901.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria and croup.	
New York.	3,437,202	1,366	722	24.15	17.64	1.02	4.46	14	
Chicago.	1,698,575	—	—	—	—	—	—	—	
Philadelphia.	1,293,697	476	127	24.84	14.10	.63	5.26	21	
St. Louis.	575,238	—	—	—	—	—	—	—	
Baltimore.	506,967	187	54	19.67	16.85	.54	1.63	—	
Cleveland.	381,768	—	—	—	—	—	—	—	
Buffalo.	362,387	—	—	—	—	—	—	—	
Cincinnati.	325,902	—	—	—	—	—	—	—	
Pittsburg.	321,616	141	30	17.02	17.72	7.09	.70	—	
Washington.	278,718	—	—	—	—	—	—	—	
Milwaukee.	265,315	—	—	—	—	—	—	—	
Providence.	176,597	58	15	22.41	8.62	5.17	1.72	1.72	
Boston.	560,892	170	42	23.85	16.47	3.41	1.70	.57	
Worcester.	118,421	34	16	17.64	14.70	—	—	5.88	
Fall River.	104,863	26	8	11.55	15.40	—	—	—	
Lowell.	94,969	32	15	21.87	25.00	—	9.37	3.12	
Cambridge.	91,886	25	7	16.00	4.00	—	4.00	—	
Lynn.	68,513	20	7	20.00	10.00	—	10.00	5.00	
Lawrence.	62,559	22	11	27.27	—	9.09	—	—	
New Bedford.	62,442	15	6	20.00	6.67	6.67	—	—	
Springfield.	62,059	23	7	8.70	8.70	—	—	—	
Somerville.	61,643	15	2	33.33	6.67	—	—	—	
Holyoke.	45,712	10	3	10.00	—	10.00	—	—	
Brookton.	40,063	13	5	33.50	—	7.70	—	15.40	
Haverhill.	37,175	7	2	14.30	14.30	—	—	—	
Salem.	35,956	10	4	10.00	—	10.00	—	—	
Chelsea.	34,072	15	4	20.00	—	—	6.67	13.33	
Malden.	33,664	16	7	18.75	12.50	6.25	—	—	
Newton.	33,587	6	2	16.67	16.67	16.67	—	—	
Fitchburg.	31,531	11	2	—	27.27	—	—	—	
Taunton.	31,036	12	—	25.00	—	—	—	—	
Gloucester.	26,121	8	1	—	—	—	—	—	
Everett.	24,336	5	1	20.00	—	—	—	—	
North Adams.	24,200	7	2	—	28.60	—	—	—	
Quincy.	23,899	9	3	—	11.11	—	—	—	
Waltham.	23,481	4	1	25.00	—	—	—	—	
Pittsfield.	21,766	2	—	—	50.00	—	—	—	
Brookline.	19,935	1	—	—	—	—	—	—	
Chicopee.	19,187	8	3	12.50	12.50	—	12.50	—	
Medford.	18,244	9	1	11.11	33.33	—	—	—	
Newburyport.	14,487	3	1	—	12.50	—	—	—	
Melrose.	12,962	5	1	20.00	—	—	—	—	

Deaths reported 2,810; under five years of age, 1,127; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 635, acute lung diseases 440, consumption 293, scarlet fever 30, erysipelas 4, typhoid fever 45, whooping cough 13, cerebrospinal meningitis 14, smallpox 32, measles 41, diarrheal diseases 56.

From whooping cough, New York 10, Philadelphia 1, Baltimore 1, Lowell 1. From cerebrospinal meningitis, New York 2, Philadelphia 1, Providence 1, Boston 1, Worcester 2, Lowell 1, Lynn 1, Brockton 2, Chelsea 2, Marlborough 1. From scarlet fever, New York 16, Philadelphia 9, Pittsburgh 1, Boston 3, Taunton 1. From erysipelas, New York 2, Philadelphia 1, Baltimore 1. From measles, New York 34, Pittsburgh 4, Boston, Lowell and Brockton 1 each. From smallpox, New York 4, Philadelphia 19, Boston 8, Hyde Park 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Dec. 14, the death-rate was 18.5. Deaths reported 4,076; acute diseases of the respiratory organs (London) 427, whooping cough 55, diphtheria 73, measles 145, smallpox 27, scarlet fever 38.

The death-rate ranged from 11.0 in Blackburn to 24.7 in Oldham; Birkenhead 17.3, Birmingham 22.6, Bolton 17.0, Bradford 14.3, Brighton 17.7, Bristol 17.5, Burnley 19.3, Cardiff 16.4, Croydon 12.8, Derby 13.3, Halifax 15.9, Hull 14.5, Leeds 18.2, Leicester 17.7, Liverpool 20.9, London 18.5, Manchester 19.6, Newcastle-on-Tyne 20.3, Norwich 20.5, Plymouth 22.7, Portsmouth 18.1, Preston 22.1, Salford 21.2, Swansea 16.5, West Ham 15.9, Wolverhampton 16.0.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 4, 1902.

R. C. HOLCOMB, assistant surgeon. Detached from duty with the Marine Battalion, Cavite, and from the "Helena," and ordered home to wait orders.

R. M. YOUNG, assistant surgeon. Detached from the "Constellation," and ordered to the Asiatic Station via the "Rainbow," as the relief of Assistant Surgeon R. C. Holcomb.

J. B. BUCHANAN, assistant surgeon. Detached from the "Columbia" and ordered to the "Constellation."

E. M. BLACKWELL, assistant surgeon. Ordered to the "Columbia."

A. M. FAUNTLEROY, assistant surgeon. Detached from the Naval Academy and ordered to the Naval Hospital, Norfolk, Va.

P. E. McDONNOLD, assistant surgeon. Ordered to the Naval Academy.

#### SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY.—There will be a meeting of the Section for Clinical Medicine, Pathology and Hygiene, in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, Jan. 15, at 8 P.M. Dr. Henry Jackson will present a paper entitled, "Some Points in the Diagnosis of Acute Abdominal Disease." Drs. J. M. Jackson and C. A. Porter will report "Three Cases of Thrombosis of the Mesenteric Vessels." Discussion by Drs. Elliot, Monroe and Bottomley.

H. F. HEWES, M.D., Secretary.

#### RECENT DEATHS.

OSCAR DUNREATH ABBOT, M.D., M.M.S.S., died in Manchester, N. H., Jan. 1, 1902.

ROYAL BLOOD PRESCOTT, M.D., M.M.S.S., died in Nashua, N. H., Jan. 2, 1902, aged 63 years.

#### BOOKS AND PAMPHLETS RECEIVED.

Zur Waldeyer-Feier. By Carl Beck, M.D. Reprint. 1901.

On a Case of Sarcoma Treated by the Röntgen Rays. By Carl Beck, M.D., New York. Illustrated. Reprint. 1901.

Some New Points in Regard to Raynaud's Disease. By Carl Beck, M.D., of New York. Illustrated. Extract. 1901.

Die Operation der Hypospadie. von Prof. Dr. Carl Beck, New York. Illustrated. Leipzig: Verlag von Georg Thieme. 1901.

Modern Aspects of Congenital Osseous Malformations. By Carl Beck, M.D., New York City. Illustrated. Reprint. 1901.

Transactions of the Louisiana State Medical Society at its Twenty-second Annual Session, held at New Orleans, La., April 18, 19, 20, 1901.

Separat-Abdruck aus der Deutschen Aerzte-Zeitung. Herausgeber: Hofrat Dr. E. Stadelmann. 1901; Verleger: Louis Marcus, Verlagsbuchhandlung. 1901.

A Case of Double Penis. Combined with Exstrophy of the Bladder and Showing Four Ureteral Orifices. By Carl Beck, M.D., of New York. Illustrated. Reprint. 1901.

Clinical Dermatology, a Practical Guide to the Examination of the Blood with Reference to Diagnosis. By John C. DaCosta, Jr., M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Transactions of the Association of American Physicians. Sixteenth Session held at Washington, D. C., April 30 and May 1 and 2, 1901. Vol. XVI. Printed by the Association, Philadelphia, 1901.

Proceedings of the Philadelphia County Medical Society [During November]. Illustrated. Published by the Society, Monthly, from October to June inclusive, at 110 S. Eighteenth Street, Philadelphia, Pa. 1901.

XIVe Congrès Séance d'ouverture, 21 Octobre, 1901. Discours de M. Lucas-Championnière, Chirurgien de l'hôtel-dieu, membre de l'académie de médecine, Président du xiv Congrès. Coulommiers: Imprimerie Paul Brodard. 1901.

The Twentieth Century City. A Record of Work Accomplished for Civic Betterment. Proceedings of the Annual Convention, 1901, of the American League for Civic Improvement. Illustrated. Springfield, O.: The Home Florist. 1901.

Faux Adénoidisme par Insuffisance respiratoire chez des névropathes. Troubles de la voix Parlée et chantée. By Marcel Natier et Abbé Rousselot. Illustrated. Paris: Publications de La Parole, Institut de Laryngologie et Orthophonie. 1901.

A Case of Peripheral Pseudo-Tabes with Exaggerated Reflexes. Autopsy and Microscopical Examination Showing Degeneration of the Peripheral Nerves and no Lesions of the Spinal Cord. By Charles K. Mills, M.D. Illustrated. Reprint. 1901.

De la valeur comparative des procédés médicaux ou Chirurgicaux et des exercices orthophoniques dans le traitement de certains vices de prononciation. Paris: Publications de La Parole Institut de Laryngologie et Orthophonie. Illustrated. 1901.

Treatment of Lateral Curvature of the Spine. By De Forest Willard, M.D., Clinical Professor Orthopedic Surgery, University of Pennsylvania; Surgeon to the Presbyterian Hospital, Philadelphia. Illustrated. Detroit: William M. Warren. 1901.

Saunders' Question-Compends. Number I. Essentials of Physiology, prepared especially for Students of Medicine. By Sidney P. Budgett, M.D. Arranged with Questions following each chapter. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

Verhandlungen des Dritten Nordischen Kongresses für innere medicin. Zu Kopenhagen D. 26-28 Juli, 1900. Herausgegeben vom Oberarzt, Dir Dr. H. Köster, Generalsekretär, Gothenburg. Stockholm: Kungl. Boktryckeriet. P. A. Norstedt & Soner. Illustrated. 1901.

Political Assassinations in Some of Their Relations to Psychiatry and Legal Medicine. By Charles K. Mills, M.D., of Philadelphia, Professor of Mental Diseases and of Medical Jurisprudence in the University of Pennsylvania. Reprint. 1901.

An Experimental and Clinical Research into Certain Problems Relating to Surgical Operations, an Essay Awarded the Alvarenga Prize for 1901 by the College of Physicians of Philadelphia. By George W. Crile, A.M., M.D., Ph.D. Illustrated. Philadelphia: J. B. Lippincott Co. 1901.

The Separate Localization in the Cortex and Subcortex of the Cerebrum of the Representation of Movements and of Muscular and Cutaneous Sensibility. By Charles K. Mills, M.D., Clinical Professor of Nervous Diseases in the University of Pennsylvania; Neurologist to the Philadelphia Hospital. Reprint. 1901.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Vol. IV. December, 1901. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1901.

Forty-sixth Annual Report of the Executive Committee of the Hartford Hospital, including the Seventeenth Annual Report of the Old People's Home and the Twenty-fourth Annual Report of the Hartford Hospital Training School for Nurses. Illustrated. Hartford Press: The Case, Lockwood & Brainard Company. 1901.

Mitteilungen über die Luft in Versammlungsräumen-Schulen und in Räumen für öffentliche Erholung und Belehrung sowie einiges über Förderung der Ventilationsfrage in technischer Beziehung und durch gesetzgeberische Massnahmen. von Th. Oehmcke, Regierungs- und Baurat a. D. München: Druck von R. Oldenbourg. 1901.

## Original Articles.

DIFFICULTIES IN THE DIAGNOSIS OF SYPHILIS.<sup>1</sup>

BY JAMES C. WHITE, M.D., BOSTON.

At your kind request, Mr. President, it is my purpose to say something about the difficulties in the diagnosis of syphilis, and of the errors which, therefore, so frequently arise.

There are three great and terrible diseases which carry off a large proportion of mankind in all parts of the world — leprosy, tuberculosis and syphilis. Of two of them we know the cause to be a bacillus. In the other one, syphilis, we have not yet recognized the bacillus. There can be not the slightest question, however, of its existence. We simply have failed thus far to know what reagents will show us its presence. That same remark might have been made not many years ago both with regard to tuberculosis and leprosy. Of the two in which we know the bacilli we find great difficulty in recognizing any physical differences in their appearance and behavior under reagents, and yet we know that so alike as they are, they are capable of producing very great differences of tissue change in the affections of which they are pathognomonic. So in syphilis we have a disease which presents appearances — tissue changes — very different from those of tuberculosis and of leprosy.

Now, it is hard to see why these minute bodies, so alike, should yet be able to produce in human cutaneous tissues so great differences of action. Of course, all these tissue changes are not due to the presence in the tissues of the bacilli as such, but we must recognize a power in these minute bodies of giving off emanations, which may be absorbed and carried to all parts of the human tissues, the skin as well, there to exert influences which are quite unlike in their results to those produced by the presence of the bacilli themselves, that is, the lesions in which we find the bacilli may differ very greatly from those in which we do not find them in the same patient, so that we are forced to adopt the doctrine of toxins, or emanations, which are capable of producing great varieties of tissue change, which the bacilli themselves are not capable of doing directly. Leprosy has two chief types of manifestations which generally run into each other, if the patient lasts long enough — the tubercular form and the anesthetic form, according as the bacillus invades first the cutaneous tissues or the nerve tissues. Tuberculosis of the cutaneous tissues presents three or four distinct clinical forms. Syphilis, on the other hand, is capable of producing a great number of what we recognize as types of tissue change, marked by characteristic cutaneous lesions. The number of cutaneous lesions, as we all know, which characterize the affections of the skin are very few, — 10 or 15 in all, — primary and secondary, so called. There are, however, some 120 in-

dividual affections of the skin, and with those 10 or 15 lesions we are capable of making pictures by combinations, as we spell an infinite number of words with double that number of letters. So with half that number of lesions we know we are capable of producing a great variety of tissue changes and very distinct cutaneous affections. It is, indeed, on account of the limited number of these lesions that the great difficulty arises in their interpretation. We have to judge by their chronology, by their grouping, by their color, and by many other characteristics before we can draw any inferences whatever as to what those particular combinations mean. Now, it necessitates a very intimate knowledge of all cutaneous changes in all other affections of the skin, before we can make a diagnosis of the syphilodermata, for syphilis is only one of the affections in that group of 115 or 120 dermatoses which I spoke of, and it is in many cases largely by exclusion of the more common affections of the skin that we are familiar with, that we are able to arrive at a diagnosis. Formerly, as the older members here know, it was not infrequent, whenever a very rare affection of the skin presented itself, if it were not recognized by the physician, to say that it must be syphilis because he did not know what else it might be.

When I was a house pupil in the Massachusetts General Hospital there were two cases under observation which impressed themselves on me to a very marked degree, both uncommon diseases, both marked by very unusual and striking phenomena. One of them was a gentleman who occupied for a long time one of the principal rooms there, and who was shown as a wonderful case. He presented numerous forms of lesions, the most striking which ever occur upon the skin, and, inasmuch as none of the staff at the hospital had ever seen such a case, they concluded that it must be a rare form of syphilis. Now we know that such cases are called *granuloma fungoides*. Another case was a man who lay in the ward for months, and presented peculiar cutaneous phenomena. The staff came to the opinion that it must be a case of syphilis because it could not be anything else. That was a case of leprosy, and, as none of the attending physicians were familiar with leprosy, it was to them a case of syphilis. Thus, all unknown and striking forms of skin disease were liable to be classed under its name. Of course, now that our knowledge of cutaneous affections is much more extended, although every few years new dermatoses are being added to our list, and affections are being isolated which have been previously confounded with others, we are able to restrict syphilis to its own legitimate phenomena.

Now, in addition to these inherent difficulties in connection with the diagnosis of syphilis, that is, its great variability in methods of expression, we have those fallacies with regard to certain points connected with it which may be called almost classic, and which, I am sorry to say, exist today to a considerable extent among the profession. One is, in the first place, the significance

<sup>1</sup> Remarks made at the meeting of the Boston Society for Medical Improvement, Nov. 4, 1901.

of failure to get the history or sign of the initial lesion. Physicians often say, who come to me with regard to the case which they may bring to me in consultation: "I don't see how I can make this out to be a case of syphilis, because I do not get any history of an initial lesion, I do not get any evidence of a primary lesion." I tell them they may generally ignore the matter of the primary lesion, and that, as a rule, it is of little consequence in determining the history or existence of syphilis. It is of so little consequence, in fact, whether there has ever been any history of initial lesion, that I rarely take the trouble to ask any questions about it in cases where a patient presents upon the skin syphilodermata in any form. Patients will often conceal all they can with regard to its previous existence, although they know the importance of your having all the information possible on which to base a proper diagnosis. They seem to be much more ashamed of the existence of the initial lesion than of the lesions which follow in its train. In the next place, it is often so trivial in character that it passes entirely unnoticed by them, and they are not aware, it may be, of its existence, or it has had an extragenital site, the nature of which they have not recognized at all; so that it is, as I hold, of little importance—the failure to get a history of an initial lesion. In women that lesion is more often masked than not.

Next, with regard to the so-called "copper-color" of the efflorescence, a great deal of stress is laid upon that, and a great many mistakes are made in saying: "This cannot be syphilis, because I do not find any 'copper-color' about the eruption." It is a great pity that any such term was ever invented. In leprosy, tuberculosis and all chronic tissue changes in the skin, if the lesions exist a long time, and especially on certain sites of the body, they may have a dull reddish, copperish hue. So in syphilis also; but the copper hue in the eruptions is exceptional, not the rule, as cases occur, because we see more of the earlier manifestations of syphilis than we do of the later ones, therefore, it is fair to say that such tints of the syphilodermata are exceptional. They do exist, but so they do in other affections of the skin, and very little weight should be laid upon that. Another matter: "No scabs in the hair." Now, certain forms of syphilis affect the scalp; many others do not. I should say in the great majority of syphilodermata, as we see them, the scalp is not affected at all. There are so many other affections in which the scalp is affected, moreover, that it is well not to lay too much stress upon a negative answer in that regard. It is of very little consequence in the diagnosis of syphilis whether there are any lesions on the scalp or not, as a rule.

Another fallacy exists concerning loss of hair. Patients say: "My hair has not come out any and therefore it is not syphilis." Or, on the other hand, patients with syphilis often have the greatest fear of loss of hair, and you can generally safely assure them that, as a rule, they have nothing to fear as to loss of hair, and that loss of hair in

syphilis is the exception and not the rule. When the hair is lost it is in very characteristic ways, so that one rarely fails to interpret aright this peculiar form of alopecia, but it is an exceptional and not a constant symptom.

Another point in infantile syphilis is the lack of emaciation, or marasmus. We are told that syphilitic children are emaciated, having a resemblance to monkeys, and that they are not nourished well at all, the skin is wrinkled, they look like little old people, etc. This is true in exceptional cases, but it would not do to lay any weight whatever on that in forming an opinion as to whether a suspected case in an infant were that affection or not. A large proportion of children with syphilis may be plump and healthy when they are born, or, I had better say, syphilis very often occurs in perfectly plump, healthy looking infants, and, moreover, the disease will begin and run a considerable time without telling at all upon the general appearance of the patient, so that you are astonished at the healthy aspect and the apparently healthy condition of infants at times with syphilis, and one is apt to be very much deceived in consequence. These are what I should call the traditional fallacies with regard to the diagnosis of syphilis.

Then comes the great difficulty arising from the power of simulation, or resemblance to many well-known common affections, which the syphilodermata present. That is undoubtedly owing to the limitations of the skin in its power of producing tissue changes under a great variety of exciting circumstances. The lesions which are earliest and most common in syphilis are, first, hyperemic macules, generally of brief duration and often overlooked; papules and tubercles of varying size, becoming moist in certain localities; slightly elevated patches or areas flat and more or less scaling, or similar changes of annular form; papulo-vesicles; papulo-pustules; small follicular papules of conspicuously grouped arrangements; large and discrete follicular papules; vesicles; pustules; bullæ; and then among later forms of tissue change we have ecchymatous lesions, rupia-like crusts, scales, purpuric extravasations, pigimentary changes, nodules or gummata, deep destructive processes, and, finally, cicatrices. Now, with this great multitude of individual lesions it is evident that syphilis is capable of producing an almost endless variety of appearances in its cutaneous phenomena, so that it well deserves that title of the Protean malady. It is on this account also that confusion arises in diagnosis. Take the initial lesion of syphilis. We know what that is by inoculation experiments—a papule which lasts ordinarily a certain time in the macular stage, becoming papular. The infiltration extends peripherally and deeper, and subsequently undergoes secondary changes at times, and varies greatly in its appearances according to its site. Now, we have other lesions on the penis which are liable to be confounded with this. The soft ulcer (*ulcus molle*), and the herpetic forms of eruption, and very often mistakes occur in interpreting these

appearances. I always advise the students, in speaking to them of herpes progenitalis, to use very simple methods, never to treat a case by internal remedies, as long as there is doubt about the nature of the process. If it be herpes the vesicles will be multiple; but they may become excoriated and form a shallow ulcer. If it be herpes it is self-limited; if let alone, it cannot last beyond a certain time, and it never does harm to leave it alone — protect it and let it be. The diagnosis solves itself. If it be a soft ulcer, if it do not spread and is simply kept clean, it gets well under simple local treatment; it does not undergo marked infiltration, and never calls for constitutional treatment. If it spread rapidly, we know it is not herpes; we know it is not an initial lesion of syphilis. If it do spread rapidly, it is easily destroyed. Never cauterize it until you are thus sure of your diagnosis, and never give internal treatment for it. One sees, later in life, so many cases of mistakes of most serious character made in consequence of neglecting these simple rules. One is constantly appealed to by persons to know whether they have syphilis, in connection with life insurance, and especially with regard to marriage. You inquire why they ask. They say that two or three years ago they were told they had syphilis. You go back and try to make an analysis of the facts as they occurred. "You had a sore, you say, on the penis?" "Yes." "How long did it last?" "Well, the doctor cauterized it after it had been going two or three days, and it lasted a longer or shorter time;" therefore all means are lost of judging the nature of that process by the appearances at that era. "Did he do anything else?" "Gave me medicine at the same time." "What did he give you?" "Some 'potash' or mixed treatment." There he made the most serious mistake possible, because one cannot take iodide of potash alone or mixed with mercury without, in a great number of cases, producing an eruption. Unless a person is much better versed in the knowledge of the appearances iodides are capable of producing on the skin than most dermatologists are, it is utterly impossible to distinguish between possible syphilitic manifestations and an iodide eruption, and the physician later appealed to has lost every possible means of deciding whether that person had syphilis or not. It should be almost a criminal offence for a physician to give iodide of potash under such circumstances, or ever to give iodide of potash in the early stages of syphilis, except in rare malignant and destructive forms. It is wholly unnecessary, and leads to serious errors with regard to the disease afterwards.

The penis is a very frequent seat of the itch insect, and there he produces some of his best performances in the way of all sorts of cutaneous changes, and they are so exaggerated that at times they are mistaken for syphilis. I have seen many cases of scabies treated as syphilis, and this diagnosis was simply because on the penis were discrete lesions. Now it happens that those discrete lesions in scabies on the penis may be by far the

most important diagnostic appearance of that disease.

Moreover, the affections which syphilis simulates are many. I will briefly mention those which are most apt to be confounded with syphilis: In the first place, measles. That seems strange, but to a dermatologist who does not see much of the exanthematous rashes it is sometimes a pretty difficult matter to determine at sight a case of measles, and I am always ready to excuse a physician when he mistakes a case of measles for syphilis, or *vice versa*. I have treated physicians themselves who had syphilis and had been treated for measles by brother physicians, because syphilis, when it develops in a very rapid way over the whole surface of the body, as it does like a rash accompanied by marked febrile symptoms, the early syphilitic fever, closely simulates, at times, the appearances of measles, and one can readily understand how such a mistake may be made.

Varicella may be mistaken for syphilis, and so may variola. I have had a few patients come to my room at the hospital, presenting a universal acute pustular syphilis covering their faces, and I have been tempted to say to the class: "If you are afraid of smallpox you had better leave before I take the opportunity of close examination of the case." I am not one of those who believe themselves capable of diagnosing smallpox easily. I see very little of it, naturally; I do, unfortunately, see an occasional case which comes into the clinic, and I am happy to ask one of my colleagues there, who fortunately has had considerable experience in the treatment of smallpox, to make the diagnosis. I find very great difficulty in recognizing the differences between varicella and variola, and I hope all of you are possessed of more acute powers of discrimination than I am in that respect, but I have seen some very serious errors made, and I have seen why both varicella and variola may be mistaken for syphilis and for each other. Of course, that is diagnosis at sight I am speaking of, and one has to make up one's mind pretty quickly in cases of suspected variola.

There is an affection called pityriasis rosea described years ago by Gibert. It is characterized by the appearance over small or large portions of the general surface, especially the trunk, of circumscribed, slightly scaling patches, itching more or less, sometimes covering the whole body thickly. Physicians as a rule do not recognize it. There is no reason they should, because they were not taught about it when students, and unless they have seen a case or two, they would hardly recognize it. In a series of cases of the disease a very close resemblance to scaling syphiloderma of mild grade will be observed. I have seen a few cases in which I had to confess my complete ignorance at sight, whether the patient had pityriasis rosea or syphilis. Of course, there are other associated manifestations which ought to enable one to make the diagnosis, but sometimes they are masked, and sometimes it is a very difficult matter to distinguish.

Eczema in adults would not be easily mistaken for syphilis, but infantile eczema may very well be. By no means infrequently is a child affected apparently with erythematous eczema and presenting no physical appearances whatever which enable one to distinguish it from cutaneous syphilitic changes of the same type, so that it is by no means infrequent for infants to come to the hospital and to have written on their case paper "No treatment at present." Later they develop those associated conditions which make the diagnosis of syphilis certain.

Psoriasis rarely occurs on the palms, but there the lesions simulate closely the appearances of syphilis of these parts, and it is perhaps impossible to judge by them alone, without a history and without observation of other portions of the body, whether you are dealing with syphilis or psoriasis.

Lichen scrofulosorum, so called, is an affection described by Hebra, characterized by the appearance of small papules in clusters, sometimes in ring form, on the trunk in debilitated persons. Now it is looked upon as produced by the toxins of the tubercle bacillus; but it closely resembles some cases of small clustered syphiloderma, and, without other means of diagnosis, judging by the cutaneous appearances alone, it might be difficult at times to distinguish them.

We have cases of universal acne, and I do not know anything more puzzling at times than to distinguish the two affections, a tubercular and pustular syphiloderm from a generalized acne. In the cutaneous manifestations alone, the resemblance is very strong.

Ecthyma is a name we apply to certain lesions, mostly below the knee,—the large chronic crusted sores of deep penetration which you see so often in poor, miserable subjects. Those lesions, too, closely resemble the simple rupia-crusted-like manifestations of syphilis of those parts.

Pemphigus in new-born children is sometimes syphilitic and sometimes it is not, and that is about all you can say. It is almost impossible to make your diagnosis in the beginning as to whether blebs in infants are due to syphilis, or are an innocent type which is sometimes epidemic and occurs in hospitals without any relation whatever to syphilis. It is a very difficult problem at times to answer the question as to what a case is going to be.

There is an affection called erythema induratum, described years ago by Bazin, although forgotten by the profession. It is only within a few years that it has come to be recognized again. It is characterized by nodules something like those of erythema nodosum, on the lower legs as a rule, extremely chronic in their course, which develop to the size of a bullet or nutmeg, and penetrate deeply into and below the skin; instead of occurring on the front of the leg, as the nodules of erythema nodosum do, they are situated chiefly on the lateral and posterior surfaces of the lower legs, and often ulcerate and form deep-seated lesions which last a long, long time. Lately, endeavor has been made to show that they are really

evidences of tuberculosis in the skin, but formerly, they were undoubtedly, in the great majority of cases, considered syphilis. I remember two cases in the wards of the Massachusetts General Hospital which were so regarded.

Seborrhea on the scalp is sometimes closely simulated by syphilis. In other words, syphilis may show itself on the scalp in the form of seborrheal scales, or seborrhea accompanies syphilis at times. The most characteristic form of alopecia in syphilis is loss of hair in ragged, angular patches, many and not large, and that is the type that may often be recognized below the line of a man's hat a long way off. That is the most characteristic form of alopecia due to syphilis. The other form is that which is associated with seborrhea in which the hair is lost generally, thinning out from debility and disordered condition of the sebaceous glands. Alopecia areata, in which the hair is lost in areas, is entirely unlike the ragged alopecia of syphilis, and yet they are sometimes confounded.

Then we have certain changes in the pigmentary layer of the skin, certain forms of leucoderma and melanoderma associated together and rather characteristic of syphilis. I am not speaking of the pigmentary changes which follow upon the site of a previous syphilitic eruption, but simply pigment changes alone, where you have, on the sides of the neck especially, dark areas in which white areas occur. That is a very characteristic manifestation of syphilis. It is apt to be confounded with vitiligo, in which you have a similar increase and loss of pigment on the skin over great areas; but the seat on the neck of such changes, both of atrophy and hypertrophy of pigment, are very characteristic.

The taches bleues (those blue spots), maculæ cerulæ, which occur upon the skin as the result of pubic lice, which one discovers not infrequently in hospitals on inspecting the surface of the patient, present appearances which somewhat resemble a macular syphiloderm, and might lead one to raise the question whether you are dealing with a late stage of macular syphilis in the skin.

Leprosy may be mistaken for syphilis. The example I first spoke of, at the time I was a student in the hospital, is an illustration, but at the present day such mistakes occur, too. The appearances do resemble each other at times, but I think one ought to be able to make the diagnosis in the great majority of cases; certainly those who are familiar with leprosy would not make that error. It would be too long a subject to go into the distinctions, however, between those affections. Tuberculosis, also, in some of its cutaneous phases, resembles syphilis. Lupus is not infrequently mistaken for syphilis, and some of the other forms of cutaneous tuberculosis as well; but the one phase I want particularly to call attention to is dactylitis, the enlarged turkey-leg finger, in which the nearest phalanx to the hand is bottle-shaped, dwindling down to the apex. Those cases were formerly all called syphilitic



dactylitis, but probably tuberculosis produces a far greater share of these conditions than syphilis does. I rarely see a case of syphilitic dactylitis; I see every year one or two cases of tuberculous dactylitis, so that dactylitis is by no means necessarily evidence of syphilis.

I might say something about drug eruptions which simulate syphilis. We used to know a few of them because they were produced by drugs commonly given, but now that new drugs are continually being invented, it is as much a part of our province to study the phenomena of their action on the skin, as it is of their action on any other parts of the system, because so many of them do affect the skin, and we are obliged to increase our knowledge in this regard to a considerable extent every year. These new drugs are given for certain affections, and sometimes the appearances produced by them on the skin are mistaken for these diseases themselves. I have already said as much as I care to with regard to iodism and the part it plays in confounding the diagnosis of syphilis. The bromide eruptions are much larger, more exaggerated in their types than those of iodine, as a rule, and are capable of producing on the skin, as you know, a great variety of extraordinary lesions; and such appearances in infants might be very deceptive, as to whether you are dealing with an uncommon type of infantile syphilis or not. I once saw a child who was sent into the hospital as having syphilis. There was some reason to question the appearances, and on pushing inquiries I found that the mother had been given by her physician iodide of potassium for syphilis. It was doubtful if she had syphilis. The child received the iodide through the mother's milk, which produced a mild type of iodic eruption on the skin, and that had been mistaken for syphilis and served to corroborate the diagnosis of syphilis in the mother.

Then we have difficulties due to the simultaneous occurrence of other affections with syphilis. We are having rather a spread of scabies, for instance, at present, and there have been lately in our skin room a number of cases where syphilis and scabies have been associated, and although it was easy to make the diagnosis, because we are familiar with the appearances of scabies, one can readily see why one disease might have escaped diagnosis by persons not thoroughly familiar with both these diseases. It complicates the appearances a good deal, these associated diseases, and sometimes renders the complete diagnosis a matter of impossibility. It is so when you have psoriasis and syphilis occurring in the same person. We had three such cases last year; and if we had not formed our diagnosis of psoriasis in the patient before the syphilitic manifestations showed themselves, it might have been difficult to know whether we were dealing with the one or the other, or with more than one affection. Sometimes affections are so associated with syphilis that one wonders what the connection between them may be; for instance, I have seen three cases where, under the inunction cure of syphilis, lichen planus

showed itself. In some cases zoster appears during the inunction cure, just as when one is using arsenic zoster appears, so that some diseases by preference seem to occur in association with syphilis.

Then other difficulties arise from the failure to recognize initial lesions of extragenital site. Dr. Post gave such an admirable paper upon that subject within a year that I need not do more than to allude to it, except to say again how very important it is to be able to recognize syphilis in its earliest stages on other parts of the body than the genitals, and of how frequent occurrence that is, and how calamitous are the results this failure to recognize leads to. I think I stated in my remarks in connection with Dr. Post's paper, that I had treated a number of physicians who got their syphilis by treating cases of syphilis in their colleagues who did not know that the sore on their finger was syphilitic in character, and that the physicians who treated such sore contracted it also through their fingers and gave it to other members of their family in turn, which led to calamitous results, and all through their failure to recognize the nature of the lesions on the hand. First and last, such mistakes as that are of very common occurrence, not only in the professional forms of this disease, but in everyday life. I have seen two amputations done by surgeons for a syphilitic sore upon the finger. Moreover, one is constantly seeing similar mistakes made in connection with chronic syphilitic lesions of initial character on the lips.

Now, one word in conclusion: One must have courage to make a diagnosis of syphilis often, but one must never be deterred by the high social position of a patient or the family in which suspected cases occur, or the moral character of the suspected parties, because one meets syphilis in all professions, in every class of society; and, as I said, sometimes failure to make a diagnosis is made because the family physician does not dare to make that diagnosis, and that is something which he should always be prepared to do, on the merits of the case, irrespective of the social surroundings of the patient. And another word with regard to a common fault of the profession: insufficient treatment and the lack of care in seeing that their patients are instructed upon the necessity of a sufficiently long duration of treatment. I have adopted the rule of telling every patient whom I see for the first time with syphilis that it is a matter of three years' care at the shortest in every case; that the first year is a year of perpetual, continuous, uninterrupted treatment; that the second year may be the same or an interrupted course, according as the first year goes on under observation, and that the third year is a year of observation, without treatment, perhaps; but without that third year of observation and entire freedom during it from every manifestation of the disease, one cannot assure the patient that he is well or likely to remain well, and that the question of marriage, which so often comes up in connection with this disease, can never be properly



determined until after that third year has passed. I fear that we fail to impress upon patients the necessity of such long duration of treatment and observation in every case of syphilis as much as we should.

### NEEDLESS LAPAROTOMIES, WITH A REPORT OF EIGHT CASES.<sup>1</sup>

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THE cases of needless laparotomy reported here do not include those in which an exploration pure and simple was made, nor those in which through an error in diagnosis one surgical condition was found instead of the expected one. They are rather those in which no surgical lesion could be discovered at operation in spite of the fact that the symptoms, so far as they could be analyzed, led definitely to a diagnosis of some grave surgical trouble within the abdomen. They might be defined more accurately as operations for medical lesions, or operations in which no adequate cause for the symptoms could be found.

I have not included that curious type of pneumonia in which the abdominal signs are most prominent; fortunately, so far, I have escaped opening the abdomen under these circumstances, although the temptation has been strong in more than one instance: nor have I included cases of typhoid simulating appendicitis, as both of these classes deserve separate consideration by themselves.

The diagnosis in most of the cases is open to criticism and suggestion; it has been speculative by necessity, especially where the patients were unable to give any intelligent history or description of their symptoms. In some of them, operation, to be of benefit, on the basis of a correct diagnosis, was demanded at once, before the meagre history and the unsatisfactory examination could be deliberately analyzed.

In brief, the cases, with perhaps the exception of the last one reported, represent all of those in which I have regretted that I was led to operate; but as I mentally review them, I am afraid that, for the most part, I should repeat the procedure under similar circumstances.

To make my confession a complete one I should, perchance, include cases like the following: Chronic appendicitis and hysteria; exploration for supposed typhoid perforation due to a double pyelonephritis; enlarged spleen from unknown cause; supposed cholecystitis in a patient with gumma of the liver; supposed intra-abdominal hemorrhage from contusion, and passive congestion of the left hepatic lobe from tricuspid lesion. In these cases there was either some lesion, indeterminate beforehand, or else the condition of the patient demanded exploration as the more conservative measure. Operations similar to these must fall to the lot of everyone; the plea that the operation does no harm is not a good

basis to work upon, and yet in a small proportion of cases this plea must be legitimate. There are abdominal diseases in which the true nature of the lesion is beyond the perception of the most skilled, and in some instances, grave and serious doubts must be cleared up by operation, and mainly on the basis that if the laparotomy does no good it can do no harm.

**CASE I. *Acute phosphorous poisoning.***—A young woman was brought to the hospital in a delirious condition, by the ambulance. An indefinite history—most of which was gleaned from the husband after operation—of the use of some oil to produce abortion was obtained. The bowels had not moved for ten days, and for several days there had been persistent vomiting. The tongue was dry and dirty, and the distended abdomen was very sensitive to examination. A diagnosis of septic peritonitis was made. Under ether several quarts of high-colored urine, showing a thick ring of albumin, were drawn. A median incision showed some old adhesions about the pelvis but nothing abnormal elsewhere. The abdomen was filled with salt solution and closed, the patient living only a few hours.

Autopsy showed acute fatty degeneration of the liver, kidneys and myocardium, acute gastritis and cystitis, evidently caused by some irritant poison like phosphorus.

The distended bladder was recognized before section, but in the general picture made by the facies, the abdominal tenderness, the obstipation and vomiting, it played an unimportant rôle.

**CASE II. *Hypertrophic cirrhosis.***—A young married woman, 32 years of age, had had attacks of weakness coming every 3 or 4 months for 2 years, and lasting about 2 weeks. For 6 weeks before entrance to the hospital there had been 7 or 8 loose stools daily, occasionally with blood and some vomiting. There was much general abdominal pain when the bowels moved, and occasional epigastric cramps independent of the other pain. There was much loss of weight, and for 4 weeks a marked jaundice. The color of the stools varied between dark and light, but at no time were characteristic. Examination showed intense jaundice, and the smooth edge of the liver could be felt at the level of the umbilicus. The pain persisted and the patient grew delirious. The diarrhea meanwhile continuing with almost constant tenesmus, and the temperature indicating a septic condition, the abdomen was opened. The liver was found to be smooth, symmetrically enlarged and of a mottled yellow color without evidence of local induration. Close to the celiac axis a hard nodule of the size of the thumb could be felt, but its nature could not be determined. As nothing abnormal was found elsewhere the abdomen was closed. On the following day the jaundice was less marked, vomiting ceased, and the patient felt better. The jaundice rapidly faded, the diarrhea lessened, and by the end of three weeks she was in an excellent condition, practically without jaundice or symptoms. Later I learned indirectly that she was treated in the

<sup>1</sup> Read before the Boston Obstetrical Society Oct. 15, and the Harvard Medical Society of New York Nov. 23, 1901.

Medical Out-Patient Department for cirrhosis, but whether that was the true and only cause of the acute symptoms that induced operation, I cannot say.

**CASE III. *Acute nephritis.***—This patient, a widow 53 years old, was brought to the hospital in a very bad condition, by the ambulance. There was a history of severe pain starting two days previously in the left abdomen and back, shifting to the right hypochondrium, where it persisted. Although there was persistent bilious vomiting, the bowels had moved freely the day before entrance. Her color was bad and her pulse irregular and intermittent. A mass, apparently the right hepatic lobe, could be felt as low down as the umbilicus, but behind this, in the region of the kidney, was an area of marked tenderness. By catheter a few drops of bloody urine were drawn. No edema of the face was found. The general condition was bad, but after consultation with Dr. Bullard operation was advised on the chance that there might be some acute inflammatory process going on within the abdomen. A small incision showed the tumor to be the swollen right hepatic lobe. The gall bladder was moderately swollen and tense, but without signs of peritonitis or stones. Elsewhere, nothing could be felt or seen to warrant interference, and the abdomen was closed.

She lived for 18 days, vomiting considerably, with a temperature practically normal, but with persistent loss of flesh and strength. No autopsy was obtained. The urine examined the day after operation showed a specific gravity of 1,034,  $\frac{1}{4}\%$  albumin, pus and renal cells, brown granular casts and some blood. A few days before death there was  $\frac{1}{4}\%$  of albumin, a few leucocytes, many hyaline casts, some with round cells adherent.

**CASE IV. *Nephritis.***—A trained nurse, 30 years of age, came under Dr. Henry Jackson's care, with the following history: Gastritis 3 years ago, with some digestive disturbance at various times since. Nine days before entrance to the hospital there was gastric pain and distress, without vomiting. The pain soon became severe and colicky, requiring morphia. Two days later there was again severe abdominal pain. Five days after admission she was well enough to sit up, but in the evening there was a return of the pain, fever and general abdominal tenderness, most marked in the appendix region, which quieted down under poultices. On the eleventh day slight edema of the lids, with mild fever, was noticed. Then for a few days there was alternating comfort and vomiting, with abdominal pain. On the sixteenth day the patient had chills, vomiting, pain in the right iliac region, general abdominal tenderness, and a temperature of  $104^{\circ}$ , with a rapid, intermittent pulse. Blood count showed a leucocytosis of 18,800. Palpation showed slight tenderness of the abdomen generally, with marked tenderness in the right hypochondrium, and fullness, with an apparent tumor, in the region of the right kidney; the tenderness over the appendix was less marked. The patient, meanwhile, in

the last few days, had lost ground. Under ether the spasm of the right rectus persisted in the hypochondriac region, but nothing abnormal could be felt over the appendix. A short opening was made, and nothing abnormal could be found in the liver, ducts, pancreas, stomach, intestines or appendix. About the falciform ligament there were a few adhesions, and one edge of the omentum felt thickened with a few recent adhesions. The upper border of the right kidney seemed obscure and fuller than normal, but not indurated. There was no excess of peritoneal fluid. As no further interference appeared to be called for, the abdomen was closed. Convalescence was steady and satisfactory, the urine increasing to normal about 3 weeks after operation, and the patient being discharged well and strong at the end of 6 weeks.

The urine on the day after operation showed a trace of albumin, a specific gravity of 1,018, much pus, many hyaline and granular casts, with occasional renal cells. Two weeks later it was the same. The quantity voided at first was only 11 oz., ranging from 17 to 30 oz. for 3 weeks, when it gradually increased to 60 oz.

**CASE V. *Alcoholism.***—An Irishwoman, 50 years old, was transferred from the medical ward with a history of delirium tremens in times past and a recent period of excessive drinking. She was unconscious, with bed sores and a distended abdomen, which within 24 hours exhibited spasm and a slight fullness in the upper quadrant and left loin. The urine indicated only a chronic renal trouble. Cerebral, spinal and thoracic troubles could be ruled out clinically. The abdominal veins were prominent. Under the belief that there was a possible pancreatic or other acute intra-abdominal inflammation, an exploratory incision was made. The head of the pancreas felt swollen and indurated, and a portion was removed for examination. Nothing else was found abnormal. The patient lived only a few minutes, and no autopsy was allowed. Examination of the specimen from the pancreas showed nothing pathological. The patient's symptoms, in default of more accurate data from an autopsy, were probably due to alcoholism.

**CASE VI. *Alcoholism and Morphinism.***—This case was somewhat similar to the last, with morphia as an additional factor. A dissolute woman of 35 fell down a vessel's hold for a distance of 20 feet, while intoxicated. At entrance to the hospital there was considerable shock, with contusions about the lower spine, severe backache and abdominal pain. When seen 8 hours after injury and about 4 hours after admission, there was increasing vomiting, tenderness over the abdomen generally, with marked spasm on pressure, and pain. The urine, drawn by catheter, contained some blood. Dulness in the right hypochondrium was noted, and apparently some fullness in the left hypochondrium. A diagnosis of rupture of the kidney or an intra-abdominal hemorrhage from some other cause was made, and the abdomen was opened. Nothing was found to

account for the symptoms and the wound was closed. Later, it was discovered that the patient was a morphin habitué and that any combination of symptoms possible could be evoked by reducing the customary dose of the drug. Convalescence from the operation was satisfactory, but it was difficult to cure her of her habit.

**CASE VII. Obesity.**—A man, 46 years old, was brought to my office by Dr. J. W. Johnson. A month before I saw him he had lost about 30 pounds, his weight falling to 145 pounds, and being seen at this time, when examination was easy and satisfactory, by a very keen diagnostician, a tumor of the kidney, supposed to be sarcoma, was found. Since then he had rapidly gained weight to 186 pounds, and apparently an ascites was well under way, as the circumference of the abdomen was increasing at the rate of one inch a day. Examination at this time was unsatisfactory, the abdomen being tense and fluctuating. An indefinite tumor could be felt in the region of the left kidney and in the right lower quadrant. For a year he had had dull pain in the left loin, which at times was sharp and aggravated by motion or jarring, and frequently interfered with sleep. After consultation at my office he sought the advice of one of our most prominent surgeons, who was unable to make a definite diagnosis but advised exploration. A month later he entered the hospital for operation, the abdomen having meanwhile steadily increased in size all out of proportion to the increase of his body elsewhere. I started to aspirate, but could not convince myself that there was ascites, so I opened the abdomen under ether. There was no excess of fluid; the kidneys, after most careful palpation, showed nothing abnormal. Nothing was found elsewhere except an excessive quantity of fat in the omentum (which was undoubtedly the tumors felt from the outside) and in the mesentery.

That there may have been a small renal calculus, with temporary blocking of the ureter, is quite possible, especially as the patient had had a marked oxaluria, for which he had been successfully treated by Dr. Johnson. His family history should have given me a clue to the diagnosis, as his father and sister were abnormally fat. Whether the obesity accounted for all of his symptoms, it is impossible to say with the data at command; it certainly explained the rapid increase in his abdominal circumference.

The symptoms were relieved for a while by operation, but later I learned that they had recurred more or less and were probably due to his oxaluria.

**CASE VIII. Supposed pancreatic cyst.**—In June, 1899, a married woman of 48 was dragged over the dashboard of a wagon and kicked by a stumbling horse. Unconscious for a while she vomited several times, the vomitus showing streaks of blood. Twenty months later she was referred to me by Dr. Benner of South Framingham, with the story of daily vomiting since the injury, the vomitus always being a yellowish, bitter fluid,

never containing food and coming at any time of day, but perhaps more frequently in the afternoon. She never vomited during the night. She complained of no pain, but a feeling of fullness and a swelling in the epigastrium which were relieved by the vomiting. At no time had there been jaundice and she had lost about 30 lbs., although her appetite and digestion were good. The epigastrium was tender with spasm. An indistinct feeling of deep fullness merging off to the left could be felt on palpation. The aortic impulse felt superficial; the stomach was not dilated. Elsewhere the abdomen was negative. She had already sued the town where she was injured and had recovered damages. A diagnosis of pancreatic cyst, or partial obstruction of the duct, or a retroperitoneal growth, was made. As she was steadily growing worse an exploration was advised. A fortnight later, at the Framingham Hospital, the abdomen was opened. Under ether the epigastric spasm was slight only. The supposed tumor proved to be the pancreas spread out over a rheumatoid spine projecting forwards. Careful examination of all the adjacent organs showed them to be normal. The retroperitoneal space was opened and nothing found to explain her condition. The abdomen was closed, she recovered quickly from operation, and the fullness and vomiting disappeared never to return.

To discuss the possible diagnoses in each individual case would lengthen the paper indefinitely. In some, painstaking examinations were made, while in others only a routine examination could be carried out under the existing circumstances; but, for the most part, in each individual many possible conditions were debated and ruled out, although it has not seemed worth while in this report to elaborately discuss the various considerations.

## THE VAGUS REFLEX.

BY THOMAS J. MAYN, A.M., M.D., PHILADELPHIA, PA.

IN a footnote appended to my first paper<sup>1</sup> on the vagus treatment of phthisis, the statement is made that on investigation it will be found that pressure over the course of one vagus in the region of the neck produces more pain on one than on the opposite side in most phthisical persons, and that this supersensitiveness usually corresponds with the side of the chest having the affected lung. During the two years that have elapsed since this was written I have investigated this subject further and believe that it is not only an almost constant concomitant of phthisis, but that it is a frequent premonitory symptom of this disease, and is often associated with other pulmonary and nervous disorders either as a forerunner or as an accompanying sign.

Nor did I know when the above was penned that the physiological and the clinical aspect of vagus compression had been described very ably

<sup>1</sup> The hypodermic injection of silver nitrate over the course of the vagi in the treatment of pulmonary consumption, *Philadelphia Medical Journal*, Feb. 11, 1899.

by Dr. Augustus Waller, as early as 1870.<sup>2</sup> This learned authority says, in the paper referred to, "that pressure on the vagus occasions a deep-seated sensation of a peculiar benumbing character in the head, which scarcely amounts to pain. The sense of languor and of fainting, as if 'going off,' is so manifest, that if the head and body be not supported, and if pressure on the nerve is continued, complete syncope ensues." He also gives the history of some cases of vomiting, of pain in the head and neck, of hysteria, and of hemiparesis, which were materially benefited by means of vagus compression.

My own study of this phenomenon, which I venture to name *the vagus reflex*, dates back some years, and to me at least it has opened an interesting field of research, which is comparatively new, and which I believe is of considerable importance, both clinically and therapeutically. So far as my notes show, the following case was the first one that drew my attention prominently to this subject:

CASE I. In 1891, Mrs. S. was suffering from pulmonary phthisis in the third stage, and from which she died in the course of the same year. During one of my visits she complained of marked soreness along the course of the right vagus in the neck. Pressure in the same region caused her to gag and vomit, which was not the case if a similar degree of pressure was applied on the left side. These pressure phenomena I could reproduce at my own pleasure. A narrow and short strip of fly plaster over the painful nerve relieved the cough to a marked degree, and abated the nausea and vomiting which had previously been called forth when pressure was applied over the affected nerve.

CASE II. The following case, which is the very converse in many respects of the one just related, came under my observation more recently: C., aged 54, a sufferer from asthma for some years, was treated with the silver nitrate injections for this disease for a year and a half, and always with relief to the dyspnea, cough and general distress. In January, 1901, he returned with a fresh attack of asthma, which he attributed to influenza. At this time he received 10 minims of a 2-1-2% solution of silver and cocaine nitrate each, in the right side of his neck. In the course of 48 hours there was considerable swelling at the seat of injection, and he found that buttoning the neckband of his shirt produced distress in the epigastrium, nausea and cough, and that pressure applied with the fingers on the tumefaction called forth retching, vomiting and cough. These effects could be repeated at the pleasure of anyone, for a period of about a week or 10 days, the time during which the lump lasted, but could only be produced when pressure was made directly over the latter. Pressure over the region of the vagus, either above or below the swelling, or over that of its mate on the opposite side, caused no disturbance whatever. There has been no recurrence of the asthma since that injection was given.

I had no experience of this kind before nor since, and it must be acknowledged that it is difficult to account for the peculiar effects of the injection in this case. Why should the cough, expectoration and physical signs belonging to asthma disappear after the injection, and why should the stomach, which performed its function normally before, become irritable on pressing the swelling? Is it possible that the degree of stimulation which ele-

vated the tone of the depressed pulmonary fibres of the vagus could become a source of irritation to the more normal and more incompressible fibres of the gastric branches of the pneumogastric?

The following is a typical example of a group of cases which are frequently met by the practitioner, and in which the morbid manifestations of the vagi are more apparent in the laryngeal than in any of the other branches.

CASE III. W., female, aged 36, was first seen June 10, 1900, when she gave this history: Father died of phthisis, aged 40; mother well, and aged 60. Patient is third oldest of a family of seven. Two sisters, aged 18 and 22 respectively, and one brother, aged 23, died of phthisis; one maternal aunt, aged 60, died of apoplexy, which was immediately preceded by acute pneumonia, and one maternal uncle died of grip-pneumonia. Patient resembles her mother.

*Present symptoms.*—She complained of being chilly for the last 3 weeks, with pain in the middle of the chest. Has been having rheumatic pain in her joints, but is free from this affection at present. Has constant distress and fulness in the occipital region. Is nervous and constantly tired and awakes unrefreshed in the morning. Her appetite is good, bowels and menses regular; has lost some in flesh; no night sweats, and had malaria. Coughs a great deal, which is followed by vomiting, but expectorates little. Her cough is paroxysmal, appears usually in the morning, and seems to be accompanied by spasm of the laryngeal muscles, for occasionally she loses breath and falls down unconsciously. These attacks are very exhaustive, and afflicted her for 3 years. Noon respiration 28, pulse 76, temperature 98.2-5°, weight 104.3-4 lbs.

*Physical signs.*—No dulness, but a roughened respiratory murmur over the whole area of the left lung, and an occasional dry rale in the mammary region of same lung. Both vagi are sensitive to pressure, which is very acute in the nerve on the left side of the neck.

*Treatment.*—Injected 5 minims of a 2-1-2% solution of silver nitrate, preceded by the same dose of a 2-1-2% solution of cocaine hydrochlorate over the left vagus in the region of the neck, and gave internally the following:

R  
Strych. Sulph.  
Quin. sulph., sod. salicyl., and lith. cit each gr. i  
Make xxxii capsules.  
Sig.—One capsule four times a day.

June 16. No spasm of the throat since last visit. No cough at night, but some during the day. Fulness and pain in occiput and vomiting very much improved, sleeps better, and the soreness in the middle of her chest has disappeared. States that her whole condition began to improve immediately after the injection was given. Injected same dose on right side of neck; other treatment same.

July 1. No spasm since she came under treatment. Cough very much better, no more vomiting, soreness gone out of chest, and occipital fulness has disappeared entirely. Injected the same dose on the left side of the neck.

It is a year now since she came under treatment, and altogether received three injections. Her cough has practically left, she has had no spasm of the glottis, no vomiting, no occipital distress, and no pain or soreness in the chest. Her temperature remains normal, her pulse 72, her respiration 20, and she weighs 107 lbs.

CASE IV. This is a case in which the morbid symptoms of vagus disorder manifested themselves chiefly in constant cough, copious yellow expectoration, general loss of strength, and a painfully tired feeling in the lower legs.

H., male, aged 28, married, whose father and mother are well, and who is the third oldest of a family of five, one of which died in early infancy, and the rest are well. No lung disease or asthma in the family. He was seen for the first time May 12, 1901, when he gave

<sup>2</sup> On the effects of compression of the vagus nerve in the cure or relief of various nervous affections, *The Practitioner*, April, 1870, p. 193.

the following account of his affection: With the exception of typhoid fever, which he had in 1889, he was practically well all his life until February, 1901, when he began to have a cold feeling along his spine, and in the following month he had what was supposed to be a catarrhal affection of the right lung. From this time on he had a spasmodic cough, and expectorated copiously, and these symptoms have increased up to the present time. Appetite medium, tongue coated, vomiting in the morning, bowels inclined to be constive, and lost from 6 to 8 pounds in flesh since he is sick. He feels tired—the legs from the knees down painfully so. He never had malaria or rheumatism, but is suffering from profuse night sweats; and his right arm feels lame and heavy. At 11 A.M. temperature was 98 2-5° F., pulse 78, respiration 18; weight 130 3-4 lbs., stature 5 ft., 7 1-4 inches.

**Physical signs.**—Slight impaired percussion resonance in right suprascapular region, a few crepitant râles over anterior base of same lung, and a few sibilant and mucous râles in lower half of left lung, anteriorly and posteriorly. Vagus reflex most evident on left side of neck. Pressure on left vagus produces pain and discomfort in the left side of the chest and tingling, sweating and coldness in whole of left arm down to tips of the fingers.

**Treatment.**—Injection of 5 minims of the silver, preceded by the cocain solution in each side of the neck, and internally the following:

<b>B</b>									
	Strych. sulph.	.	.	.	.	.	.	gr.	1
	Quin. sulph.	.	.	.	.	.	.	dr.	iss
	Sod. salicyl.	.	.	.	.	.	.	dr.	1
	Pil Hydrarg.	.	.	.	.	.	.	gr.	iv
	Make xxxii capsules.								
	Sig.—One capsule four times a day.								

May 21. Feels better, cough no longer spasmodic and very much less, expectoration less copious, no more vomiting, appetite very good, tongue cleaner, tiredness much improved, and no longer a painful feeling in the legs below the knees, and night sweats are much improved. Temperature (6 P.M.) 98 2-5°, pulse 72, respiration 18, weight 138 1-2 lbs.

June 9. Feels well, coughs only slightly in the morning, his appetite is good, and he has neither tired feeling nor night sweats, although he has been working for a week. His temperature (6 P.M.) is 98 2-5°, pulse 72, and respiration 16, and he weighs 140 lbs. Numbness and tingling in right arm on making pressure over the right vagus is very much less than it was at first visit. Same treatment internally and an injection of 8 minims of silver and cocain solution on right side of neck.

June 22. Coughs and expectorates very little. Feels strong. Is working right along; no tiredness; a lameness in right arm when pressure is made over right vagus. Night sweats have disappeared and his appetite is splendid. Temperature normal and he weighs 141 lbs.

Feels well at present and is working steadily.

**CASE V.** J. H. was seen for the first time on June 4, 1901, when he gave the following history: He is married, and 43 years old. His father died aged 67, of heart disease, and his mother, who is rheumatic, is alive at the age of about 70. Patient is the sixth oldest of a family of nine. One brother had inflammatory rheumatism when young, then a chronic cough, and finally contracted whooping cough, from which he died at the age of 32. One brother died in infancy. A sister has a chronic cough, but does not suffer from headache. Patient resembles his father. Had typhoid fever in 1876, and has been suffering from severe headache for many years. The latter is of a paroxysmal character, occurs every week and becomes so violent that he is compelled to go to bed. The pain is not unilateral, but as a rule begins in the temples, moves to the occiput, and then down the spine. In former years the paroxysms were accompanied by vomiting. Has some pain in right shoulder and arm, in fact, the whole right side of his body is more tender to pressure than the left. Is very tired in the lower legs, a feeling

which he had since boyhood. Sleeps poorly, and has a ringing noise in his head. He coughs some, and expectorates blood-streaked sputum occasionally. His appetite is good, bowels constive, and has no night sweats. Eyeglasses gave no relief to his headache.

**Physical signs.**—Heart and lungs normal. Pressure over both vagi produces a fulness in the head with a tendency to unconsciousness, and he would have fallen into a swoon if pressure had been persisted in at this examination. After several trials it was found that these phenomena were more readily induced by pressing on the left than on the right vagus.

**B**

Strych. sulph.	.	.	.	.	.	.	.	gr.	i
Quin. sulph.	.	.	.	.	.	.	.	dr.	iss
Pil. Hydrarg.	.	.	.	.	.	.	.	gr.	vi
Pulv. capsici and extr. Colocynth	.	.	.	.	.	.	each	gr.	iv
Pulv. aloes	.	.	.	.	.	.	.	gr.	ii
Make xxxii capsules.									
Sig.—One capsule four times a day.									

June 11. Not well. Headache very severe since last visit, and continues up to the present time. The other symptoms were practically the same. Pressure over the vagi produced the same reflex disturbances in the head. Continued the same capsules and gave him an injection of 5 minims of silver nitrate solution over the left vagus in the neck.

June 14. Better. Free from pain in occiput and had no headache, sleeps poorly, and the ringing in the ears continues. Injected 5 minims of same solution over right vagus.

June 26. Had an attack of headache on the 16th, but altogether feels much better. Pressure over vagi produces neither fulness in the head nor dizziness, as before, but pressure over left vagus provokes a short cough which is not the case when pressure is made on the right vagus. Same internal treatment.

July 4. Says there is a marked improvement in the headache, and feels generally better.

July 18. Felt well until the 14th and 15th, when he had severe headache not so much in occiput as in left temple, which was accompanied by difficulty of breathing when headache was most severe, a symptom which he had experienced before. Dizziness is produced by pressure on right but not on left vagus.

Aug. 5. Headache less intense than before. Bowels are regular and stools are more satisfactory than they were. Appetite good, sleeps well, cough and expectoration gone. No dizziness nor pain on pressing both vagi. Injection 2 minims right side of neck.

Oct. 1. Had two attacks of headache, which were of shorter duration, since last visit. Cough, expectoration and blood-spitting have entirely disappeared. Bowels regular and appetite is very good. The legs feel strong and have lost their tired feeling. The occipital fulness has gone. Pressure on either vagus produces neither cough nor dizziness.

**CASE VI.** N., male, aged 31, came under my care in September, 1892, with chronic consolidation of the left apex, with the family history and all the symptoms of pulmonary consumption. In the course of a year and a half the symptoms and physical signs subsided, and, barring an attack of appendicitis for which he was operated on three years ago, he has since been practically well and able to pursue his occupation actively. On Feb. 28 last, he came to me with the history of a cold accompanied by severe paroxysmal coughing and vomiting. There was no loss of flesh or any relighting of the old phthisical condition. I prescribed morphin, cocain, codein, benzoin, nux vomica, quinin, strychnin, muriate of ammonia, etc., without any perceptible influence on the cough or vomiting. On April 4, injected 8 minims of a 2 1-2% solution of silver nitrate over the left vagus, which I found more sensitive than the right. His cough became easier at once and the vomiting ceased, and in 10 days he was entirely free from both symptoms.

**CASE VII.** W., female, aged 42, exhausted from nursing her husband through a protracted illness, suffered from general tiredness and a constant pain and fulness in the occiput for three months before she came under my observation on Oct. 4, 1901. Her heart and lungs

were normal, and there is an absence of lung disease in the family history. Pressure over the right vagus is very painful, aggravates the occipital fulness, induces a feeling of faintness and a weakness in the lower limbs. Injected 5 minims of the silver nitrate solution in the right side of the neck over the vagus, and gave her internally:

R

Strych. sulph.	. . . . .	gr. i
Quin. sulph.	. . . . .	dr. iiss
Cinch. salicyl.	. . . . .	dr. ss
Pil. hydrarg.	. . . . .	gr. iv
Make xxxii capsules.		
Sig.— One capsule every four hours.		

In five days she wrote me from her home, which was about 50 miles distant, that she feels much better and stronger, and that the occipital pain and fulness had entirely disappeared 24 hours after the injection was given, and there is no return of same up to present date.

The following case, VIII, is of more physiologic than therapeutic interest, inasmuch as it has been seen very recently for the first time and has not yet undergone any treatment.

M., aged 50, with some cough, expectoration and loss of flesh, feels weak and is very easily exhausted. For 2 months before I saw him he complained of fulness and throbbing in the base of the brain on the left side. There are no abnormal physical signs in the chest except an occasional short sibilant râle in the right lung. Very slight pressure with my thumb on his left vagus produced marked faintness, dyspnea, and a feeling of helplessness of the whole body. These effects were so pronounced that he would have fallen on the floor if I had not caught him and placed him in a chair.

In briefly reviewing the histories of these interesting cases it will be seen that the vagus reflex seems to figure as a central, or at least as one of the most obvious lesions which lie at the bottom of their varied manifestations. How to account for all the symptoms which followed vagus compressions on the score of the latter operation is not an easy matter in some of these instances. It is obvious, perhaps, why vagus pressure should produce fulness and pain in the occiput, or a feeling of loss of consciousness, because the vagus is in direct physiological union with the lower and higher nerve centres. But how to connect the cold sweating and tingling in the arms on the same side as that on which the pressure was made, or the sudden helplessness which comes over the lower extremities, as was experienced in three of the above related cases, with vagus compression, is a subject for further study and elucidation. That the vagus lesion is the leading factor in the pathology of the cases is confirmed or at least indicated by the counterirritant influence of the silver injections, which relieved and abated the whole abnormal condition. It is true that most of the patients also received other treatment, but it is hardly probable that this had any marked control on the disease. This is well demonstrated in the history of Case VI, which had received morphin, codein, cocain, strychnin, quinin, etc., for some days without the slightest relief to the paroxysmal cough, but as soon as the silver was administered subcutaneously over the vagus which was most sensitive, the abatement was quick and permanent.

Another feature worthy of consideration in these vagus-reflex cases is, that in not one of

them, except in the first and second, was there any marked lesions of the pulmonary organs, although to anyone who has paid attention to the relations which exist between vagus pain and pulmonary disease, it is quite clear that the former is very frequently a premonitory symptom of the latter, and may therefore be regarded as an important diagnostic sign and a therapeutic indication in disease of the respiratory organs.

## AUSCULTATION OF THE KNEE JOINT.<sup>1</sup>

BY WILLIAM ERNEST BLODGETT, M.D., NEWTON, MASS.

THE following observations are recognized to be insufficient. They are therefore hesitatingly offered. It is hoped, however, that this preliminary report may stimulate independent investigation which shall supplement the continued work of the present observers, and thus combine to produce a result more extensive and more reliable than any possible by even the elaborate work of an isolated group of investigators. The idea of joint auscultation was suggested to me by Dr. Bradford, and it was by his encouragement that I started last midsummer to assist, as well as I could, in a subject on which Dr. Bradford was then already at work.

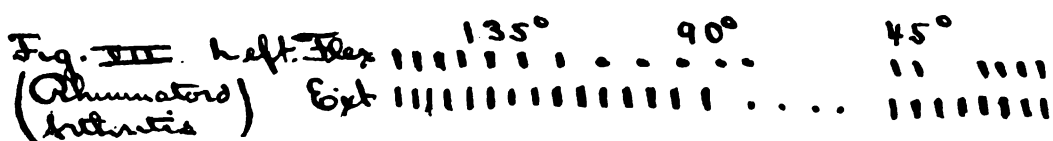
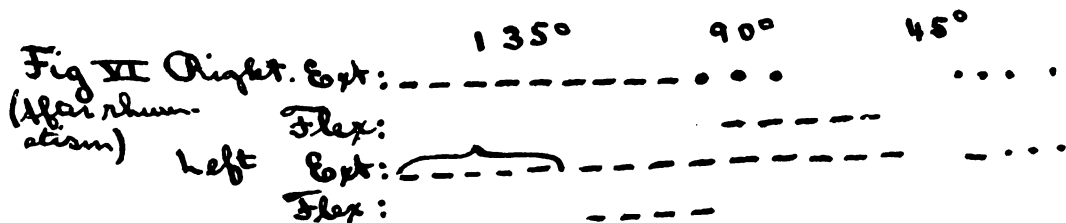
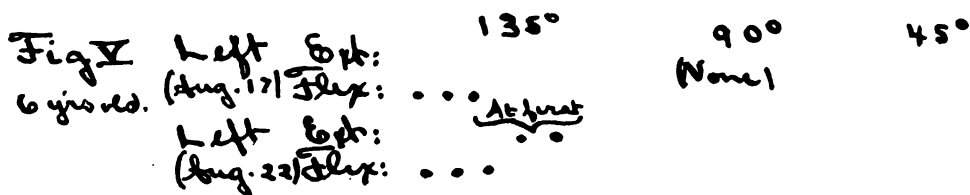
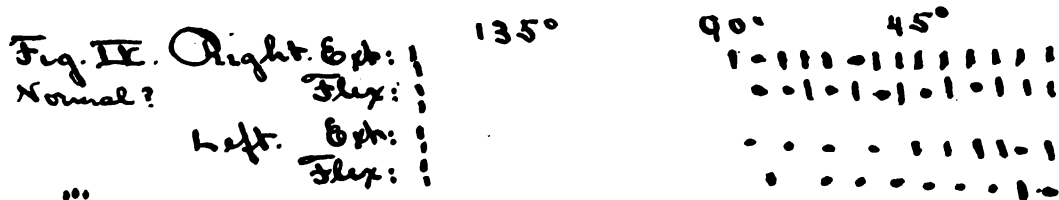
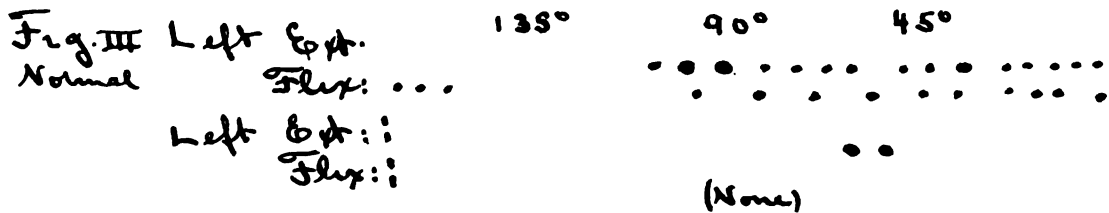
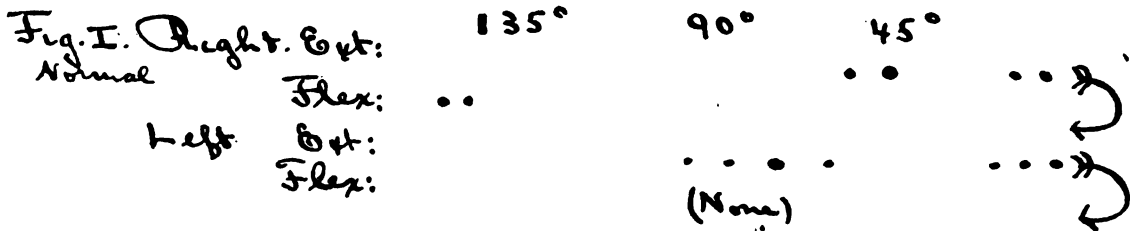
Auscultation can be applied to any of the large joints, but thus far I have listened almost only to the knee, as it is most accessible and most liable to disease and difficulty of diagnosis. As an instance of auscultation of joints other than the knee is cited a case of supposed complete ankylosis of the hip, in which detection of the joint sounds, transmitted by the trochanter, ruled out firm bony union and suggested extra-articular causes for the ankylosis.

The instrument used is the full-sized Bowles stethoscope, with a soft rubber cap sprung over the diaphragm. This cap tends to prevent slipping and skin friction sounds. With the patient lying, or sitting on the edge of a chair, the examiner stands or kneels on the side to be examined, grasps the lower leg with the hand that is nearer the foot, and with the other hand grasps the thigh just above the knee, while the index finger holds the receiver of the stethoscope resting on the bare skin over the patella. In children, the limb is small and light enough readily to be controlled in this way; but with adults, I have it convenient to have the patient clasp his hands under the thigh and assist in raising it as the knee is flexed, so that the heel clears the bed or chair. As the knee is extended, the thigh is allowed to sink again. All active motion of the limb I try to exclude, as muscular contraction produces a distant humming sound, which can be reproduced by gently placing the thumb in the ear, and then clinching the fingers into the palm; the joint sounds themselves, moreover, are liable to be altered—increased and multiplied—by muscular contraction, perhaps due to increased intra-

<sup>1</sup> Read before the Boston Society for Medical Improvement Nov. 18, 1901.

articular pressure. If there is much hair over the patella, vaseline prevents the fine, high-pitched, crackling sounds from the hair. The bell of the

necessary to teach the patient to relax the limb and assist rightly with his arms. In examining a knee carefully, I begin with the knee in extreme



stethoscope, with a little practice, can be balanced flexion, and, with a smooth movement, fully ex- on the patella, especially with children, leaving tend and flex the joint several times. The first both hands free. Usually a little practice is movement up and down gives the most sounds,



and I have repeatedly noticed that the more I examined, the less there was to hear.

In this way I have examined about 100 cases, 61 of which I have recorded by the method illustrated in Fig. I.

This is the record of E. R., common laborer, 42 years old, and will serve as a typical record of normal adult knees. The dots and dashes of the upper line in the record of each knee represent the sounds elicited by passive movement of the joint, as described, from extreme flexion, through 135°, 90°, and 45° of flexion, to extreme extension. The lower line represents the reverse movement, and reads from right to left. Record marks in short perpendicular lines at the beginning of extension and the close of flexion, that is, the left end of both upper and lower lines, represent sounds made by lateral movement of the knee. In this way, I have sought to record the joint sounds in the part of the movement in which they were heard.

Of joint sounds proper, excluding, therefore, skin and muscle sounds referred to above, I discriminate three kinds: The first and commonest, heard to greater or less extent in nearly all cases, is a snapping, creaking sound, which can be approximated by listening through the stethoscope with the bell held between the dorsum of the right index finger and the palmar surface of the middle finger and gently rubbing the lower part of the nail of the right index finger on the thumb-nail of the left hand. The second is a grating sound, coarser, rougher, and usually less discrete than the first. The third is a squeak. The first and second sounds are similar; the third is unmistakably different. The first sound I represent by round dots; the second, being a rougher sound, I represent by short, vertical parallel-marks; the third, being a more continuous note, by short dashes. Combinations or intermediate sounds are represented by alternation of the corresponding marks. The intensity of the joint sounds is recorded by the size of the marks, and the frequency is roughly indicated by the number of the marks.

This method of recording knee sounds, therefore, gives the location in movement, the kind, and, roughly, the intensity and the frequency of the sound.

To draw any conclusions from auscultation of a joint, it is, of course, necessary first to know the normal type and the range of normal variation; most of my study, therefore, I have devoted to normal joints. One record of a normal adult case has already been given. Another is added (Fig. II).

This is the record of a man 32 years old. It shows the common joint sound scattered through the movements of both knees, chiefly between 90° and straight, a loud snap in the latter part of flexion of the right knee, and a squeak from side play of the left joint in extreme flexion.

The range of normal variation seems to be wide. Compare, for example, the two following records (Fig. III).

The first is from the record of a woman 37 years old, with normal knees. The second is from a boy, 16 years old, also with normal knees. These differ only in frequency of the common snapping sound. The following, however, from a laboring man of about 55, who had had no symptoms from his knees (see Fig. IV), shows a marked tendency to the coarse, grating sound. It can be speculated that this man's cartilages and synovial membranes, like the condition of his arteries, though making no symptoms as yet, were not normal. But whether the grating sound is always pathological, especially in old people, must be decided later. In knees otherwise normal, I have heard it several times. As in old people joint sounds are increased, so in children joint sounds are decreased—fewer and finer. For example, two records from a girl 6 years old (Fig. V).

Besides illustrating the infantile type of joint sounds, these 2 records, taken 5 days apart, show the tendency of the same knee to give the same sounds at different times. Several cases, auscultated 2 to 4 times in a period covering 2 weeks, and recorded without reference to the previous records, support belief in this tendency; but several cases show the similarity to be in the total amount and the quality of sounds, rather than in the localization. The infantile type, above illustrated, was preserved in the knee of a woman about 30 years old, the development of whose leg had been much retarded by infantile paralysis.

The squeak sound from lateral movement of the knee in extreme flexion, already alluded to, can be obtained from half or more of the cases in which it is sought; it seems to have no special meaning. The squeak in extension and flexion I have heard oftenest in the normal knees of children. It was most marked in the case of a girl, 7 years of age, who, I later learned, had had inflammatory rheumatism 4 weeks before (Fig. VI).

Paralysis and general anesthesia apparently do not alter the joint sounds. Three knees with effusion gave no sound at all or sounds faint and distant. Compare with this the diminution of respiratory sounds in pleuritic effusion. It may be noted also that, in the method of imitating the snapping sound, described above, moistening the nails destroys the sound.

Following is an example of rheumatoid arthritis, that is, the form with atrophy of cartilage (Fig. VII).

The sound in these cases is the coarsest and roughest of any I have heard. Immediately after genuclasis, the sounds are still louder and harsher. In course of improvement, the sounds become finer.

In my cases of osteo-arthritis, that is, the form with hypertrophy of cartilage and outgrowth of bone, the sounds are not so harsh, and, in the one forcibly straightened case, I have observed, genuclasis did not much increase the sounds.

In a hysterical knee, in which long-standing permanent flexion had just been corrected by sug-

gestion and forcible manipulation, the sounds, as far as heard in the limited range of motion, were normal, with the loud humming of strong muscular contraction.

Conclusions are, of course, not yet justified, especially as the nature of joint auscultation prevents the exact findings and records at once obtained in x-ray work, for instance, and allows the imagination of the observer more than the usual chance to color the observation. To arrive at any trustworthy conclusions, the ear must be trained, and cases carefully examined, recorded, and compared with reference to the structural state of the knee, as shown by the history, the symptoms, and the other signs, but best of all, by operation and inspection; for, if, besides the fascination of novelty, auscultation of joints is to have any practical value, the value will depend on the ability to infer the condition of cartilage and synovial membrane, and rightly to interpret this condition.

If a single conclusion is warranted by the observations of the writer, it is that joint auscultation deserves further investigation.

## Medical Progress.

### REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND E. G. BRACKETT, M.D., BOSTON.

#### THE STRUCTURE OF THE HEAD OF THE FEMUR IN ARTHRITIS DEFORMANS.

P. BADE<sup>1</sup> has examined a number of specimens of arthritis deformans with the Röntgen rays, and found that there was a concentric atrophy in which the normal large trabeculae found in the neck and head are pressed nearer together. There is also a concentric hypertrophy in which also the normal structure is preserved, but the trabeculae seem to be pressed apart. There is irregular atrophy and hypertrophy in which there is unequal diminution and increase of the bone. The diminution of the bone is found more in the periphery of the head in the hollow of the neck between the trochanter and neck. The increase of the bone is found on the shaft between the trochanter, major and minor, as a projection in the neck in the upper half of the trochanter minor and in an angle between the neck and shaft. The bowing on the side of the trochanter remains changed less than on the side of the adductors. The concavity of the former increases where the neck has almost entirely been absorbed, the trochanter taking the place of the neck. Under these circumstances a new system of radiated supports are formed, resembling the diagram of a mechanical crane.

#### ARTHRITIS DEFORMANS.

Kelley<sup>2</sup> considers that the affection to which he applies the term "arthritis deformans" is not as

well understood as is desirable, and that the nature of the disease is not recognized partly on account of the various names which have been applied — rheumatoid arthritis, osteo-arthritis, deforming arthritis, etc. He prefers the term "arthritis deformans," which is generally employed in this country and Germany as sufficiently indicative of the distinguishing features of the disorder, and suggesting no relationship to any other disease, such as rheumatism.

He considers the disease as a distinct one, and in no way to be confounded with rheumatism or gout. There are at present two theories which are used to explain the condition, one the neural, or nervous theory, first brought forward by J. K. Mitchell, and the other, bacterial theory. While not accepting either theory he presents arguments in favor of supporting both.

Certain disturbances of metabolism have been found in a diminution of lime salts and earthy phosphates in the urine, diminution in the excretion of uric acid and urates and hydrid without disturbance of the normal relationship between the uric acid and the alloxur bases.

Irwin<sup>3</sup> reports a case in which the affections of the joints were worse a few hours after menstruation. All pains and swelling in and about the joints disappeared except Haygarth's nodosities and Heberden's nodes. The joints became supple and the movements were not nearly as painful. The relief to the joints lasted for from two to four days, then the swelling and pain recurred.

The writer concludes that the evidence tends to show that arthritis deformans is primarily of a nervous origin, but as changes of metabolism occur they are preceded by the derangement in the function of the nervous system.

Murdock<sup>4</sup> reports a careful examination of the contents of the stomach in several cases, and concludes that diet should be prescribed, not with a view of suiting the condition of the joints, but such as may best suit the existing condition of the gastric secretions.

Bain<sup>5</sup> has made some careful investigations on the subjects and reports a diminution in the uric acid secreted. The phosphates were found to be markedly diminished and the variation in their excretion closely following that of the uric acid.

Parker<sup>6</sup> is of the opinion that under the heads rheumatoid arthritis, osteo-arthritis and arthritis deformans, are grouped many diseases with but little clinical and almost no pathological resemblance. He agrees with Charcot that the early changes in acute rheumatism are precisely the same as those in rheumatoid arthritis. These views are supported by Lebert and Ranvier as well as Gurlt and Kusmaul.

Painter<sup>7</sup> urges a clinical distinction between osteo-arthritis and rheumatoid arthritis, based on the difference in the clinical symptoms. He con-

<sup>1</sup> American Practitioner and News, vol. xxxi, No. 9, p. 25.

<sup>2</sup> Medical News, vol. lxxix, No. 5, p. 166.

<sup>3</sup> Transactions of the Pathological Society of London, xxi, 124.

<sup>4</sup> St. Bartholomew's Hospital Reports, 1900, xxxvi, 177.

<sup>5</sup> Boston Medical and Surgical Journal, Nov. 28, 1901, p. 598.

<sup>1</sup> Zeitschr. f. Orthop. Chir., Bd. ix, H. 2, p. 207.

<sup>2</sup> Journal of American Medical Association, Dec. 22, 1900, p. 1618.

siders that there is no evidence of any bacterial origin of the affection; that the chronic stage is not the result of a previous acute stage.

Garrod<sup>8</sup> considers that these conditions may be grouped under two heads, in which he makes a broad clinical grouping, with the same treatment. He inclines toward infective origin of rheumatoid arthritis, while the second form is probably a dystrophy. In the discussion of the paper the general opinion tended to the similar grouping and with the belief of the infective origin.

#### CHRONIC ANKYLOSING INFLAMMATION OF THE SPINAL COLUMN.

Bender<sup>9</sup> reports this case, which occurred in a feeble woman, 24 years of age, with a complete ankylosis of the spinal column, with a slight kyphosis in the neck without scoliosis. Pain on pressure shifted into the first dorsal and first lumbar vertebræ. The affection began in the lumbar region and gradually extended in four years, but was limited to the spinal column, all other joints being free, the stiffness being dependent, according to the writer, upon ossification of the ligaments of the vertebræ, as has been described by Müller and Milin. The writer thinks that the affection should be differentiated from the ankylosis, which is accompanied by stiffening of other joints.

Thabaut describes a case of the latter class in which internal treatment was found of no value; namely, arsenic, cholchicum and salicylates. But orthopedic measures, forced fixation, daily suspension and mechanotherapeutic measures are recommended. Kurcic describes a similar case where the onset was accompanied by a feverish attack which resembled malaria. Hydrotherapeutic measures and electricity were found to give relief.

#### RADIOGRAPHIC STUDY ON DYSCHONDROPLASIA.

Molin<sup>10</sup> has described 3 cases of this affection to which Ollier has given the name "dyschondroplasia." The affection attacks the long bones, the metacarpal and phalangeal skeleton of the hand, and it is characterized by the fact that the cartilaginous tissue is irregularly developed in bones and ossifies very slowly. The affected long extremities show curves similar to that seen in rickets, the deformities resembling rachitic deformities. The etiology is entirely unknown.

#### THE PATHOLOGY OF THE GROWTH OF BONE.

Stoelzer and Salge described the results of examinations in Huebner's clinic in the last 6 years of the cases of rickets, and the results of experiments on young guinea pigs subjected to an acid food, and also the relation of the alkaline condition of the blood in rachitic children, and the result of the treatment by phosphorus on the growth of the bone. From all these examinations authors have come to the conclusion that the injury to the growth of bone in rachitic children is

due to a specific condition disseminated throughout the whole body, there being an analogy between rickets and myxedema. This condition, the writers think, can be benefited through the administration of the extract from the suprarenal capsule.

#### INVESTIGATIONS AS TO THE ORIGIN OF RICKETS.

Spillman<sup>11</sup> concludes that after a number of experiments on young animals, infantile rickets and rickets in animals are caused by digestive disorders. The affection is found especially in animals placed in moist and dark stables and subjected to an insufficient or improper diet. The investigator was able to find no results from the deprivation of animals of lime salts or the administration of lactic acid or phosphate of potash. He was able to produce in 1 case out of a series of 20 animals the lesions of rickets from a subcutaneous injection of extract of diarrhea discharges from a young child with rickets. The lesions found were a thickening of the cartilage invaded by vascular branches and without the columns of ossification. Spillman is unable to deny that there may be a specific microbe of rickets which has not been isolated, but is inclined to believe that the disease is the result of a specific intoxication which comes from the digestive organs.

#### LATE RICKETS.

Delcourt<sup>12</sup> reaches the following conclusions: Rickets can be seen in adolescence as well as in infants. The clinical manifestations of late rickets are the same as in infancy, although they are less intense and usually less generalized. The rachitic nature of genu valgum and flat-foot is demonstrated by anatomical evidence, and it is probable by scoliosis and coxavara.

#### THE SPONTANEOUS HEALING OF GENU VALGUM.<sup>13</sup>

The writer reports 12 cases untreated, where there was an arrest of the deformity but not a complete recovery. In these, marked improvement in the deformity was observed. The writer is of the opinion that in many cases operation must be avoided and the improvement left to the efforts of nature.

#### PROGRESSIVE MYOSITIS OSSIFICANS.

Rager<sup>14</sup> presents an exhaustive literature on this unusual affection, with a careful description of cases as well as several skiagraphic pictures. The writer has collected 54 cases; the affection is three times as common among boys as among girls. It is found more commonly in childhood, before the conclusion of growth. The muscles which are more frequently affected are the neck, back, shoulders and arms. A scoliotic curve of the spine is frequent. A congenital deformity of the fingers and toes, which is classed as mikrodaktylie, has been observed very frequently among these cases.

<sup>11</sup> Arch. de med. des Enfants, Mai, 1901, p. 257.

<sup>12</sup> Jour. méd. Bruxelles, 1899, p. 42.

<sup>13</sup> Beitr. z. klin. Chir., Bd. xxix, H. 2.

<sup>14</sup> Zeitschr. f. Orthop. Chir., Bd. ix., H. 3, p. 380.

<sup>8</sup> British Medical Journal, Oct. 12, 1901.

<sup>9</sup> Münch. med. Woch., Jahrg., 48, Nr. 2.

<sup>10</sup> Zeitschr. f. Orthop. Chir., Paris, 1901, Bd. ix, H. 2, p. 210.

The prognosis of the affection is always bad and treatment of no value. Ankylosis of various joints occurs, although the course is slow. Nothing is known as to the etiology and nothing accurate is known in regard to a faulty metabolism. The examination of the spinal cord has given no evidence of change.

Graham reports a case in a girl of 6 years of age. The first appearance in the child somewhat resembled advanced Pott's disease, but the prominence of the tubercles in different parts of the back made the diagnosis evident without any examination. The whole back was as solid as a plate or armor. Various muscles were affected.

Wilkinson<sup>15</sup> records a case in a boy of 13. There was a congenital deformity of the great toes. The writer calls attention to the fact that the name "myositis" is misleading, as the deposit commences in the fibrous tissues. The deposit at first consists of round cells and fibrous tissues. Sometimes cartilage is found which becomes ossified, but usually without bone cartilage.

Rolleston,<sup>16</sup> in reporting a case of a boy of 8, considers that much depends upon a congenital weakness, but that of resistance and a tendency to adherent growth on the part of the mesoblast as the result of diminished resistance, the muscles are more susceptible to inflammation, while the changes to adherent growth show themselves in the calcification and ossification of the inflammatory products.

A case is published by Burton-Fanning<sup>17</sup> differing from those usually reported, in that there was distinct evidence in the case mentioned of the occurrence of the disease in the patient's father.

#### ALBUMOSURIA IN OSTEOMALACIA.

Jochmann and Schumm<sup>18</sup> found the Bence-Jones bodies, which have always been considered as pathognomonic of bone myelomata, in a case of typical osteomalacia. The examination of these bodies showed that they belonged to a class of the albumoses.

#### CONGENITAL CARTILAGINOUS FORMATION IN THE STERNO-CLEIDO-MASTOID MUSCLE.

Lengemann<sup>19</sup> says this deformity is comparatively rare, only 16 cases having been collected hitherto. The sterno-cleido muscle was feebly developed, and several portions of cartilage were found imbedded in the muscle.

#### CONGENITAL DEFECTS OF THE MUSCLE OF THE NECK.

Kredel<sup>20</sup> has observed a single case of a child 10 years of age, with scoliosis and a complete absence of both sternal mastoid muscles of the trapezius and of the levators of the angle of the scapula. The patient also suffered from cleft palate. The attitude of the patient was very

peculiar. The two shoulders were raised, the clavicles bent strongly upwards were almost vertical. In spite of the defect, the movements of the head were free, due, probably, to the hypertrophy of the muscles which persisted.

#### TREATMENT IN HIP DISEASE.<sup>21</sup>

Indicative of the trend of many observers in orthopedic surgery, of combining more thorough fixation with traction, each of these authors advocates that greater attention be paid to this, and emphasizes the failure of the ordinary splints to accomplish this end. Each has also presented a splint which emphasizes the fixation element by the more accurate application of counter traction and firmer grip by the splint in the pelvis and parts above. Cases are quoted to illustrate the practical use of the splints.

#### CONGENITAL ANTERIOR DISLOCATION OF TIBIA.

Roberts<sup>22</sup> describes case of congenital anterior dislocation of tibia: Allowing anterior motion of the leg in thigh 50° or 60°, a small patella could be felt above the head of the tibia; the condyles of the femur could be distinguished behind, with the popliteal artery between them. The erect posture was possible by assuming marked lordosis. The deformity was demonstrated by the x-ray. The reduction of the deformity, through a large horseshoe incision with division of the ligamentum patellæ and lateral ligaments, was found to be easily accomplished. It was, however, interesting to find that a lengthening of the patella tendon by an oblique division was not sufficient to approximate ends when leg was in fully extended position. A straight limb resulted, with some motion, but the ultimate result was unfortunately not known, but was probably impaired by a suppurative process.

#### CONGENITAL ELEVATION OF THE SCAPULÆ.

Rager<sup>23</sup> observed and collected these cases, and divided them into four groups: First, where there is a change in the axis of the whole shoulder blade so that it stood in an obliquity of 45°, with the lower angle near the spine of the upper angle, in the superior clavicular fossa.

In the second group there is no change of axis, but a prominence like an exostosis, in the upper angle of the shoulder blade. In all cases there was a scoliosis, with the convexity toward the affected side.

In the third group an actual exostosis from the atlas of the upper quarter of the scapula, and lower being entirely changed in shape. The right shoulder blade is 6 cm. higher than the left. Torticollis is present and a marked cervical dorsal scoliosis.

The fourth group consists of an elevation of the shoulder blade upwards without any other alteration. These different groups show very little difference in the function of the organ. In some

<sup>15</sup> Quarterly Medical Journal, part 1, p. 25.

<sup>16</sup> The Clinical Journal, vol. xvii, No. 14, p. 209.

<sup>17</sup> Hospital Medicine and Surgery, p. 849.

<sup>18</sup> Münch. med. Woch., Aug. 20, 1901.

<sup>19</sup> Beitr. z. klin. Chir., xxx, 1.

<sup>20</sup> Deutsch. Zeitschr. f. Chir., lxi, 398.

<sup>21</sup> New York Medical Journal, Aug. 24, 1901; Dane, p. 341; Lovett, p. 344.

<sup>22</sup> Annals of Surgery, August, 1901, p. 286.

<sup>23</sup> Zeitschr. f. Orthop. Chir., vol. ix, part 1, p. 30.

the arm is useful, in almost half abduction is limited, while the other movements are good. Treatment is of little benefit as far as improving the function of the arm is concerned. Gymnastic orthopedic treatment is often of value where an exostosis exists which can be removed, but the complete re-establishment of the equality of the level of the shoulders cannot be gained, even by operation. If the deformity is untreated it is not likely to increase. The diagnosis is easily made, as the affection is not likely to be confounded with any other deformity. The affection being a congenital one, the cause is not well known.

#### CALCAREOUS PROLIFERATING TENONITIS AND TENONOTHECITIS.

Beck<sup>24</sup> claims that this rare affection is accurately described by photographs and skiagraphs. The writer concludes his article with the statement that the tendons in their sheaths have seemed to be but seldom the seat of calcareous deposits, but that more knowledge may be gained by the use of the Röntgen rays, and for this affection the writer has coined the name tenonitis and tenonothecitis proliferata calcarea.

#### CHANGES IN SURGICAL TECHNIQUE OF JOINT OPERATIONS.

Koenig<sup>25</sup> states that owing to the necessity of attempting to maintain the function of a joint, a rigid asepsis should be guaranteed. The operation should be conducted instrumentally, to the entire exclusion of any contact of the fingers with the wound. An Esmarch tourniquet is not to be used to avoid the sponging of the parts of the joint necessary in the after-bleeding following elastic compression. Irrigation with carbolic or sublimate solutions can be dispensed with. Skiagraphic examinations were found of little value in the diagnosis of foreign bodies, floating cartilage or neoplasm of the soft parts of joints.

In septic joints free excisions are recommended, and if a fever persist, a transverse excision above the patella dividing the tendon is justified. Phlegmonous gonorrheal arthritis, with scant effusion into the joint and large infiltration of the periarticular tissues, is benefited by extensive incisions. In coxitis deformans attended with marked deformity and outgrowth of osteophytes, resection of the head is recommended.

Schede claims that if a capsule and periarticular tissues are not injured a cure can be effected in most cases by washing out the joints.

#### INTERMITTENT HYDARTHROSIS.

Benda<sup>26</sup> made 54 observations of this unusual affection, and in addition 2 personal observations. The etiology is variedly mentioned; osteomyelitis, specific disease and mental affections. The onset of the disease is sudden. Effusion can take place in any joint, but by preference at the knee. The interval between the two attacks varies from several days to several weeks. Swelling disappears

in general at the end of 3 or 4 days. The affection is not dangerous, but is extremely annoying on account of its repetition. All sorts of treatments, including operation, have been tried. Sometimes an entirely psychical treatment is necessary.

(To be continued.)

### Recent Literature.

*The Diagnostics of Internal Medicine.* A Clinical Treatise upon the Recognized Principles of Medical Diagnosis. Prepared for the Use of Students and Practitioners of Medicine. By GLENTWORTH REEVE BUTLER, A.M., M.D., Chief of the Second Medical Division, Methodist Episcopal Hospital; Physician to the Brooklyn Hospital, etc., etc. With 5 colored plates and 246 illustrations and charts in the text. New York: D. Appleton & Co. 1901.

The author has written his book from the point of view of practical clinical work, and it is divided into two distinct but complementary parts: first, a study of symptoms and their indications; second, a study of diseases and their characteristics. Part I presents the Evidences of Disease; Part II presents Diagnosis, direct and differential. The book belongs in the class with Hare's "Practical Diagnosis," and has a somewhat similar arrangement. There is a utility for books of this class, and the text of this particular one is good, but they should not be expected to usurp the place of the standard books on medical diagnosis. Some of the subsections are the work of collaborators. One of the most important, on the diseases of the nervous system, is prepared by Drs. Jelliffe and Bonar.

The volume is an octavo of 1060 pages; the paper and type are especially good; the illustrations are profuse and show that the art of photography may be made an alluring as well as useful handmaiden to what purports to be, and is, serious scientific study.

*The Estivo-Autumnal (Remittent) Malarial Fevers.* By CHARLES F. CRAIG, M.D., Act. Asst. Surgeon U. S. Army, etc., etc. Illustrated by 2 colored plates and 21 clinical charts. New York: William Wood & Co. 1901.

This monograph is in octavo form and comprises 221 pages. The author has had plentiful material and large opportunities for his observations and conclusions, and seems to have made good use of these and of the labors of his predecessors. He has been connected with the Army General Hospital at San Francisco as pathologist and bacteriologist, with the Army Hospital at Chickamauga Park, with a similar Hospital at Fortress Monroe and at Havana.

The medical history of the troops at Chickamauga Park has been written. The fact that many cases of typhoid fever were there diagnosticated as remittent malarial fever is known, and the consequences have been wrought out. It is recog-

<sup>24</sup> New York Medical Journal, April 27, 1901, p. 705.

<sup>25</sup> Verhandl. d. deutsch. Gesellschr. f. Chir., xxix, Congress.

<sup>26</sup> Monograph., Berlin, 1900.

nized that some cases of remittent simulate typhoid fever very closely, but with the Widal test for typhoid fever and the knowledge of the estivo-autumnal parasite of remittent fever there is no excuse today for such costly blunders. With these precise tests, and our knowledge of the relation of the mosquito to malarial fevers, our position in regard to these affections is a very different one from what it was not many years ago — fortunately for us in view of our newly acquired tropical and subtropical responsibilities.

The author speaks of his subject as one "much neglected in the textbooks of medicine." This is rather an emphatic statement. In some of the best textbooks the treatment of it, though necessarily brief, is to the point. The subject, however, under existing conditions is of sufficient importance to merit a fuller exposition, such as the author has given it. This form of malaria is the most serious and persistent; it is endemic in Cuba, Porto Rico and the Philippines. All who are brought into relations with these countries and their inhabitants in a medical capacity should endeavor to make themselves thoroughly familiar with estivo-autumnal malaria in all its manifestations, and they will find this book a useful one to consult for that purpose.

*Pathological Technique.* A Practical Manual for Workers in Pathological Histology and Bacteriology, including Directions for the performance of Autopsies and for Clinical Diagnosis by Laboratory Methods. By FRANK B. MALLORY, A.M., M.D., and JAMES H. WRIGHT, A.M., M.D. Second edition. Philadelphia and London: W. B. Saunders & Co. 1901.

This manual, since its first appearance, has been recognized as the standard guide in pathological technique, and has become well-nigh indispensable to the laboratory worker. The volume has been enlarged from 397 to 432 pages. The actual addition of new material is greater than this would indicate, since the section on examination of urine has been practically omitted, and wisely so, as the subject is too large to be handled in a general manual of laboratory methods.

Part I remains unchanged. It contains the clearest directions and the most satisfactory methods for the performance of post-mortem examinations.

In Part II, devoted to bacteriological methods, many of the illustrations of the first edition have been replaced by photomicrographs of bacteria, the work of Dr. Wright and Mr. L. S. Brown. These original photographs are admirable. They are fully equal to the well-known photomicrographs in "Fränkel and Pfeiffer's Atlas." Especially striking are the photographs of flagella, of bacteria included within leucocytes, and of the parasite of mycetoma. Noteworthy accessions to this section are Wright's methods for the cultivation of anaerobic bacteria, Messer's method of staining bacillus diphtheriae, and Williams' modification of van Ermengem's stain for flagella, based on the use of Ortol photographic developer.

In describing the Widal reaction, no higher dilution of blood serum than 1.10 is recommended, although it has been repeatedly shown that a reaction in this dilution can occur in conditions other than typhoid fever. In fact, unless there is also clumping of the bacilli with a dilution of 1.30 or 1.50, the test should be regarded as negative.

Among the additions to histological technique in Part III are Mallory's chloride of iron hematoxylin method and Mallory's connective tissue stain, both of which have wide fields of usefulness. A rapid and satisfactory mode of making the permanent mounts of frozen sections is described.

Romanowsky's method of staining malarial parasites is given, but no reference is made to Nocht's modification. This is to be regretted, as Nocht's stain is invariably successful, while the original method is uncertain and good results are rare.

*Venereal Diseases.* A manual for students and practitioners. By JAMES R. HAYDEN, M.D., chief of Clinic and Instructor in Genito-Urinary Diseases at the College of Physicians and Surgeons (Columbia University), New York; Assistant Visiting Genito-Urinary Surgeon to Bellevue Hospital. Third and revised edition. Philadelphia and New York: Lea Bros. and Co. 1901.

The author in publishing this volume offers to students and the profession a somewhat enlarged and improved text of his preceding editions. Those which went before were useful works of their kind, and the present one has the same character, giving in small compass much practical knowledge, which is not confused by theoretical discussion.

The book is of more value to the student than to the practitioner, although both will find it useful. The volume is well illustrated and published in attractive and convenient form.

*Modern Obstetrics.* By W. A. NEWMAN DORLAND, A.M., M.D., Assistant Demonstrator of Obstetrics, University of Pennsylvania, Associate in Gynecology, Philadelphia Polyclinic. Second edition, rewritten and enlarged. Octavo, 797 pages, with 201 illustrations. Philadelphia and London: W. B. Saunders & Co. 1901.

The first edition of Dorland's work on obstetrics was published in 1896, and in the present addition, the second, much of the text has been rewritten and the book considerably enlarged. New sections have been added on several topics, among which are the surgical treatment of puerperal sepsis, serumtherapy in the treatment of puerperal sepsis, placental transmission of disease, infant mortality and the rôle of the liver in the causation of puerperal eclampsia.

As prophylaxis against sepsis the limitation of vaginal examination and abolishment of the antepartum douche are advised by the author while the post-partum douche is recommended. With



regard to the placental transmission of disease the author says that it would seem that under the influence of infection the epithelial coat of the chorion loses its impermeability, so that bacteria may pass directly through it, such a result leading to the suggestion that it is through bacterial action that the placenta surrenders its protection function and permits the osmosis of deleterious substances. In the treatment of placenta previa, version by Braxton Hicks' method and incomplete delivery is generally recommended as the safest procedure, and not the performance of Cæsarean section, which is being quite extensively advocated at the present time by some writers.

The recent theories with regard to the part taken by the liver in the production of puerperal eclampsia are given at some length. The author says that the theory of the hepatic origin of puerperal eclampsia will afford ample explanation for those fulgurant cases not accompanied by albuminuria, and will also open up a new field in the study of the grave affection of pregnancy hitherto but little understood.

The lines of treatment recommended are conservative and generally in accordance with modern teaching. References are freely presented throughout the book to writings which are often of great advantage and help in the study of a special branch of the subject. The volume is well published, and will readily find a place among the best of the modern books on obstetrics.

*The American Illustrated Medical Dictionary.*

For Practitioners and Students. A Complete Dictionary of the terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, and the kindred branches. By W. A. NEWMAN DORLAND, A.M., M.D., editor of the "American Pocket Medical Dictionary." Second edition, revised. Philadelphia and London: W. B. Saunders & Co. 1901.

A first edition of this work was issued in October, 1900. The avowed object of the author has been to furnish in a volume of convenient size an up-to-date dictionary, sufficiently full for the requirements of all classes of medical men, or, in other words, to give a maximum of matter in a minimum of space. This object has been secured by the use of a large page, thin paper, and a flexible leather binding.

In this edition the book has been carefully revised. The author has also added upward of 100 important new terms that have appeared in medical literature during the past few months. Among them appear "Anopheles," "Cryoscopy," "Johimbin," "Hemolysin," "Hedonal," "Sacrectomy."

We have already commented favorably on the first edition of this work, which represents a high degree of excellence in the art of book making. The full-page plates, of which there are many, are particularly commendable. This edition must be regarded as an improvement on the first. We note a tendency to adopt the reformed spell-

ing: "Physiologic," rather than "physiological"; "hemorrhage," rather than "hæmorrhage," etc. We confess to a certain hesitation in accepting all the consequences to which such a tendency logically leads.

*A Laboratory Handbook of Physiologic Chemistry and Urine Examination.* By CHARLES G. L. WOLF, M.D., Instructor in Physiologic Chemistry, Cornell University Medical College, New York. 12mo volume of 190 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

This volume cannot be considered as a textbook or laboratory handbook of physiological chemistry, because it does not deal with this subject in a scientific manner.

The author begins with a rather unsatisfactory treatise on proteids, carbohydrates and fats. Out of the entire field of physiological chemistry only a few secretions and fluids of the body are considered, and a disproportionately large portion of the book is devoted to urine. This subject occupies 120 of the 190 pages of the book. These pages are taken up mainly by technical processes, such as the making of a decinormal solution, which belong more properly to textbooks on quantitative analysis. The apparent purpose of this work is as a guide to clinical diagnoses. Its existence is, however, unnecessary, as it falls so far below the standard of other books written exactly for this purpose, such as von Jaksch's "Klinische Diagnose," Kruger's "Medicinische Chemie," Charles Simon's "Clinical Diagnosis."

*A Textbook of Pharmacology.* Including Therapeutics, Materia Medica, Pharmacy, Prescription Writing, Toxicology, etc. By TORALD SOLLMAN, M.D., Assistant Professor of Pharmacology and Materia Medica, Western Reserve University, Cleveland, Ohio. Royal octavo volume of 880 pages, fully illustrated. Philadelphia and London: W. B. Saunders & Co. 1901.

This work aims to furnish, in a manner suited for reference and study, a scientific discussion and definite conception of the action of drugs, as well as their derivation, composition, strength and dose.

Though entitled a textbook of pharmacology, the book is too profusely padded with other subjects to be of use as a student's textbook. The author does not content himself with the description of the action of drugs, but fills his book with even such details of chemical manipulation as the folding of a filter paper and with physical definitions such as that of specific gravity. As a reference book it is not complete enough on any one of the subjects treated.

When the author transforms this book, which he intends as a textbook of pharmacology, into a sort of encyclopedia of allied subjects, he departs from the plan so aptly and admirably carried out by the master of our science, Schmiedeberg, in his as yet unequalled textbook of pharmacology.



THE BOSTON  
**Medical and Surgical Journal.**

THURSDAY, JANUARY 16, 1902

*A Journal of Medicine, Surgery and Allied Sciences, published at Boston, weekly, by the undersigned.*

SUBSCRIPTION TERMS: \$5.00 per year, in advance, postage paid, for the United States, Canada and Mexico; \$6.56 per year for all foreign countries belonging to the Postal Union.

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ABSTRACTS AND SUMMARIES.

IN an editorial comment on the scope of *American Medicine* for the coming year, the following statement appears:

One of the principal changes will consist in a better method of presenting the reports or abstracts of original articles published in other journals. The present plan, devised four years ago and so extensively imitated by other journals since, has the objection that the reader must look over a great number of heterogeneous abstracts in order to find precisely what interests him. Always, or sometimes, we are all specialists, and we do not wish to be compelled to glean a large number of pages in order to find the special thing in which we have present concern. This suggests a topical arrangement, whereby the various abstracts shall be critically summarized in departments. Each week we shall present a review of the principal American weekly medical journals just as at present, but as regards the great mass of the rest of the world's professional literature we shall epitomize it critically under classified headings.

One week later the *Philadelphia Medical Journal* announces a similar plan. The editor says in part:

The object of this department is to place before the medical profession, as soon as possible, all that is new in medical literature and medical work, and, as far as possible, to indicate by critical comment the proper value of this work. Each summary will be written by a man whose tastes or opportunities have made him thoroughly familiar with the particular subject which he treats, so that his critical comments may be regarded as authoritative.

It is generally known that the introduction of the abstract department into weekly American medical journalism was due to the energy and influence of the editor of the *Philadelphia Medical Journal*, now the editor of *American Medicine*. This easy road to medical literature was apparently received with enthusiasm by readers, and, with slight modifications, the weekly journals,

almost in a body, came into line, and presented to their subscribers more or less incomplete abstracts of what they called current literature. We have no hesitation in saying that to carry out such a scheme satisfactorily is an impossibility. In the first place, the field cannot be covered with anything approaching thoroughness. The reader, therefore, does not get what he sometimes imagines he gets — a survey of medical literature. On the contrary, he sees a few abstracts taken from a few journals, which do not begin to cover the ground of contemporary medicine. It is an impossible task for the editor to do more than this, a fact which should be understood before we take too seriously the protestations of some of our contemporaries.

A second and very grave fault of the abstract system, as now generally used by these journals, is the generally unscholarly and uncritical manner in which the abstracts are made. At least one flagrant case has recently come to our notice in which an author's meaning was wholly misinterpreted, and he was made to maintain in the abstract of his paper the very point he was trying to oppose. This sort of thing is inevitable under such a wholesale plan as our American journals, following an energetic leader, have almost universally adopted. An abstract, to be of value, must, of all things, be well done, by a man who knows enough of the subject to single out the essential points of an author's meaning. In special lines this is altogether possible, and has been carried to perfection in Germany; but it is a little hard to conceive, for example, the great German or English weeklies indulging in abstracts of "general current medical literature."

Apparently, the inaugurator of the plan has also seen the shortcomings of the abstract system; at least he sees fit to supplement it by a critical summary of the separate branches of medicine, as may be seen from the quotation given above. The *Philadelphia Medical Journal* has had a similar inspiration. With this plan we are in entire accord; it has been long in use and has demonstrated its worth. It lacks wholly the element of originality, and we must mildly protest against the implied claim of our contemporaries that it has again introduced a "novelty" in medical journalism. The abstract idea was new in weekly journals, has been generally adopted, and, we venture to prophesy, is doomed to ultimate failure as a means of keeping the "busy practitioner abreast of the times." It is, therefore, with a modest satisfaction that we see our influential contemporaries coming back to a reasonable view of the legitimate possibilities of the weekly journal, and adopting a plan which this JOURNAL has for many years put in practice. A

critical summary of medical progress made by a man who is working with intelligence, because he understands and is interested in the subject, should fulfill in a wholly sufficient way the demands of our eager readers for knowledge. We should be on our guard against overburdening their minds with an excess of knowledge, particularly if that knowledge be of the imperfect and widely diversified sort, which the abstract system entails. Quality and not quantity must be the watchword of a dignified medical journalism, as of a dignified lay journalism.

#### REDUCED INFANT MORTALITY.

HOSPITALS for the care of young infants evidently have a distinct place to fill among our charitable institutions. However discouraging medical treatment may, in general, appear to us, it is evident that infant mortality may be remarkably diminished by ordinary precautions, in institutions where such precautions may be systematically carried out. The establishment and sufficient endowment of infant hospitals or of wards devoted to the care of infants is therefore to be welcomed. A case in point is the new building of the New York Infant Asylum, which was formally opened on Jan. 11. It adjoins the old building at the corner of Amsterdam Avenue and 61st Street extending fifty feet on one street and one hundred feet on the other, and is fitted up with all the requirements of a modern lying-in hospital. It is built of brick, with white marble facings, and cost \$150,000. At present it is four stories in height, but when an additional \$100,000 has been secured for the purpose, it is planned to make it eight stories. One of the speakers on the occasion was Dr. Stephen Smith, who was one of the original incorporators of the institution. He said that when it was organized in 1865 the rate of infant mortality in the institutions on Ward's and Blackwell's islands was 96%. In the Infant Asylum the rate had been reduced to 9%, and its influence had resulted in a great improvement in the management of the public institutions. In Boston, on a much smaller scale, the introduction of systematic and carefully regulated feeding of infants at the Almshouse Hospital on Long Island has reduced the mortality approximately 50%. This has no doubt been the experience of many institutions where young children are cared for. Such figures point their own moral. It is further of interest to note that these really remarkable achievements have been attained through perfectly rational methods of treatment, based on simple, but too often neglected, physiological principles, namely, proper food and good air. The demonstration has been conclusive that neglect is almost wholly responsible for infant mortality.

#### MEDICAL NOTES.

**AWARD OF THE GROSS PRIZE OF \$1,000.**—The Philadelphia Academy of Surgery, as Trustees of the Samuel D. Gross Prize of \$1,000 for original research in surgery, have awarded this prize, after 6 years' interval, to Dr. Robert H. M. Dawbarn of New York City. The treatise which won the competition was entitled "The Treatment of Certain Malignant Growths by Excision of both External Carotids." Upon this topic Dr. Dawbarn has worked, as opportunity served, for seven years past. The essay, when published, will contain the histories, with pathologist's report in each instance confirming diagnosis of malignancy and specifying its variety, of forty carotid extirpations by the author himself, and as many additional by about a dozen other surgeons. At least two of these are members of the Philadelphia Academy of Surgery. By the terms of Dr. Gross' bequest, the prize essay must be published in book form, and a copy thereof be deposited in the Samuel D. Gross Library of the Philadelphia Academy of Surgery.

**THE NEW SYDENHAM SOCIETY.**—Jonathan Hutchinson, F.R.S., general secretary of the new Sydenham Society, has requested the American agents of the society to announce the publication of "An Atlas of Clinical Medicine, Surgery and Pathology," selected and arranged with the design to afford, in as complete a manner as possible, aids to diagnosis in all departments of practice. It is proposed to complete the work in 5 years, in fasciculi form, 8 to 10 plates issued every 3 months in connection with the regular publications of the society. The New Sydenham Society was established in 1858, with the object of publishing essays, monographs and translations of works which could not be otherwise issued. The list of publications numbers upwards of 170 volumes. An effort is now being made to increase the membership, in order to extend its work.

**SIR ERNEST CASSEL'S GIFT FOR A TUBERCULOSIS HOSPITAL.**—Sir Ernest Cassel's name has leaked out as the donor of the £200,000 for a new sanatorium for the tuberculous in England under the patronage of King Edward VII. Sir Ernest is said to be "slated" for one of the coronation peerages. He is about fifty years of age, and owes a fortune, large even for these days, entirely to his own energy and intelligence. While his generosity is being commented on in England he has quietly departed for India.

**THE UNITED STATES HEALTH SERVICE.**—A bill changing the name of the Marine-Hospital Service to the United States Health Service has been introduced in Congress. The bill states that it shall not be construed as discharging any officers

now in the service. The jurisdiction of the service is increased to some extent, and its officers are to be under orders in time of war.—*N. Y. Medical Journal.*

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Jan. 15, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 61, scarlatina 28, measles 72, typhoid fever 6, smallpox 34.

**BOSTON HEALTH STATISTICS.**—In the city's mortality report for the week ending Jan. 11 it is stated that 6 deaths from smallpox occurred, and 40 cases were discovered, exclusive of the 4 which were registered on the morning of Jan. 11. In Boston as elsewhere, measles has been prevalent and 2 have died from that disease, and the death-rate for the city is below the average. The total number of deaths reported to the Board of Health for the week was 203, as against 233 the corresponding week last year, showing a decrease of 30 deaths, and making the death-rate for the week 18.46. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 44 cases, 7 deaths; scarlatina, 28 cases, 1 death; typhoid fever, 9 cases, 2 deaths; measles, 117 cases, 2 deaths; tuberculosis, 15 cases, 31 deaths; smallpox, 40 cases, 6 deaths. The deaths from pneumonia were 23; whooping cough, 1; heart disease, 13; bronchitis, 11; marasmus, 4. There were 11 deaths from violent causes. The number of children who died under 1 year was 35; under 5 years, 55; persons more than 60 years, 48; deaths in public institutions, 62.

**MEETING OF BOSTON PHYSICAL EDUCATION SOCIETY.**—A meeting of this society of more than usual interest was held Jan. 9. Dr. D. F. Lincoln read a paper on "Defective Children." Dr. Walter E. Fernald, superintendent of the Massachusetts School for Feeble-Minded, discussed the paper. Superintendent of Schools Seaver spoke of the mentally defective children in the schools, and of the need of classification. Dr. Walter E. Channing urged the necessity of expert examination of school children with "special reference" to their mental capacity.

#### NEW YORK.

**MORTALITY STATISTICS.**—The time in the year has now arrived when the deaths from pneumonia exceed in number those from tuberculosis. The Health Department reports show that the mortality in the city in the month of December represented an annual death-rate of 18.96, against 17.52 in the month of November, and 17.55 in December, 1900. Among the diseases in which there was an increase in mortality were the follow-

ing: The weekly average of deaths from pneumonia increased from 121 in November to 161.5; of deaths from bronchitis, 38.5 to 46; from influenza, 3.25 to 6; from whooping cough, 6 to 7; from diphtheria and croup, 43.25 to 48; from measles, 6.5 to 23; and from smallpox, 1.75 to 2.25. Among the diseases in which there was a decline in mortality were the following: The weekly average of deaths from phthisis decreased from 148.5 to 140.5; from typhoid fever, 18 to 17; from diarrheal diseases 45.75 to 35.75; and from diarrheal diseases in children under five years, 38.5 to 27.25. During the month there were reported 3 deaths from exophthalmic goitre, and 1 death each from osteomyelitis, malignant pustule, hydrophobia, Addison's disease, frost-bite and freezing.

**SULLIVAN COUNTY EXCLUDES THE TUBERCULOUS.**—Sullivan County, N. Y., which has of late been much resorted to by tuberculous patients, is making a vigorous effort to exclude such invalids from its borders. Twenty consumptives, stopping at Liberty, have, it is said, been arrested and fined \$5 each for expectorating on the streets, and in the town of Rockland an ordinance, similar to that lately adopted in Liberty, has been enacted, which imposes a penalty of \$50 on anyone who conducts a boarding-house, hotel, sanitarium, or other place in which consumptives are received. The same penalty is imposed on anyone who receives into his house or harbors any consumptive not an immediate relative of the family and dependent upon him for support, while a guest suffering from tuberculosis is not permitted to visit relatives or friends in the town even for a week.

**THE DEBT OF THE POST-GRADUATE MEDICAL SCHOOL.**—At a public reception given in the babies' wards of the New York Post-Graduate Medical School and Hospital on Jan. 7, Dr. D. B. St. John Roosa, president of the corporation and of the faculty, announced that a gift of \$100,000 had been anonymously offered towards the payment of the indebtedness of the institution, provided the \$200,000 additional required for the purpose, could be raised. He furthermore stated that within the three days previous \$35,000 of this amount had been pledged.

**STATISTICS ON TUBERCULOSIS.**—The New York State Department of Health, with a view to learning with as much accuracy as possible the number of consumptives in the State, and also something of the conditions surrounding such subjects, has sent out blanks to all the physicians of the State with the request that they be filled out and returned to the department. Among the points on which information is desired are the following: Age, sex, place of residence, occupa-

tion, nationality, duration of the disease, source of infection, if known, family history of tuberculosis, sanitary surroundings and precautions adopted to prevent spread.

**SMALLPOX AT HACKETTSTOWN.**—A somewhat serious outbreak of smallpox has occurred at Hackettstown, N. J., and for lack of hospital facilities the town hall has been converted into a hospital. It is said to have originated from a case in which the disease was mistaken for chicken-pox.

#### CHICAGO'S ATTITUDE TOWARD SMALLPOX.

THE following statement entitled "A Vaccination Creed" has been published by the Chicago Commissioner of Health, and posted at police stations, cheap hotels, waiting rooms, factories, and in places frequented by numbers of people, especially of the tramp or migrant class:

(1) That true vaccination—repeated until it no longer "takes"—always prevents smallpox. Nothing else does.

(2) That true vaccination—that is, vaccination properly done on a clean arm, with pure lymph and kept perfectly clean and unbroken afterwards—never did and never will make a serious sore.

(3) That such a vaccination leaves a characteristic scar, unlike that from any other cause, which is recognizable during life and is the only conclusive evidence of a successful vaccination.

(4) That no untoward results ever follow such vaccination; on the other hand, thousands of lives are annually sacrificed through its neglect—a neglect begotten of want of knowledge.

The following is a part of the supplement appended to this "creed."

Not one of the 346 cases of smallpox discovered in Chicago within the last 3 years was found vaccinated as defined in the "vaccination creed."

Of the total number, 306 never had been vaccinated at all, though most of them claimed that they had. Examination of the arms proved that these attempts at vaccination were failures; there was no scar and the patients finally admitted that the vaccinations when performed did not "take." A "failure" is not a vaccination; therefore, these 306 cases had never been vaccinated.

Of the remaining 40 cases, 26 had old, irregular and doubtful scars said to be the result of vaccination, but these were not characteristic; they were more like the scars from infected sores or wounds than those from vaccine. Nine had fair old scars of vaccinations made from 30 to 40 years previously. Only 5 had typical (characteristic) scars; but these also were the results of vaccination made many years before and never repeated.

In no single case of the 346 had the terms of the first article of the "vaccination creed" been complied with—vaccination had not been repeated until it would no longer "take." If it had been they could not have contracted smallpox.

#### METEOROLOGICAL RECORD

For the week ending Jan. 4, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity			Direction of wind		Velocity of wind		Weather		Rainfall in inches	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.		
S...29	29.64	49	60	38	98	94	96	S	E	S	W	21	12	R.	.91
M...30	29.59	42	50	34	98	92	95	N	N	W	W	8	9	R.	2.08
T...31	29.69	30	41	20	74	53	64	S	W	W	W	14	32	C.	
W...1	30.38	11	16	6	51	48	50	N	W	W	W	22	18	C.	
T...2	30.25	28	41	16	63	74	68	W	S	W	W	8	15	C.	
F...3	29.90	26	41	11	84	70	77	N	W	N	W	18	15	O.	.03
S...4	30.32	10	16	4	86	58	72	N	W	N	W	20	16	C.	
Mean	29.97		38	18			75								3.02

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
Mean for week.

#### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 4, 1902.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Typhoid fever.	Diarrheal diseases.	Diphtheria and croup.	
New York..	3,665,352	1,292	393	21.63	19.97	3.17	.77	2.48	
Chicago..	1,852,828	—	—	—	—	—	—	—	
Philadelphia..	1,349,624	488	119	22.50	14.76	3.07	1.23	—	
St. Louis..	603,717	—	—	—	—	—	—	—	
Baltimore..	525,330	183	41	18.02	15.98	.54	2.18	2.18	
Cleveland..	411,826	—	—	—	—	—	—	—	
Ruffalo..	375,742	—	—	—	—	—	—	—	
Pittsburg..	341,401	128	43	31.20	19.50	3.12	7.90	4.68	
Cincinnati..	332,032	—	—	—	—	—	—	—	
Milwaukee..	304,975	—	—	—	—	—	—	—	
Washington..	289,537	—	—	—	—	—	—	—	
Providence..	185,870	57	24	31.57	12.28	7.00	—	7.00	
Boston..	588,736	193	58	20.20	15.02	2.07	—	1.03	
Worcester..	127,337	18	—	—	22.22	—	—	—	
Fall River..	111,872	21	4	42.85	4.28	—	—	19.04	
Lowell..	99,574	54	21	22.20	22.20	1.85	—	1.85	
Cambridge..	96,334	16	4	25.00	12.50	—	—	—	
Lynn..	71,144	17	—	17.64	—	—	—	—	
Lawrence..	67,275	26	11	11.55	23.10	—	—	—	
Springfield..	66,854	25	6	40.00	4.00	4.00	12.00	4.00	
Somerville..	65,882	19	3	31.56	26.30	5.26	—	5.26	
New Bedford..	65,574	19	4	21.04	10.52	—	—	—	
Holyoke..	48,065	19	5	10.52	—	—	—	—	
Brookton..	43,208	10	1	20.00	—	10.00	—	—	
Haverhill..	40,392	11	4	—	—	—	—	—	
Salem..	36,567	7	4	14.30	14.30	—	—	14.30	
Newton..	36,336	10	—	10.00	20.00	10.00	—	—	
Malden..	35,390	7	1	28.50	14.30	—	14.30	—	
Chelsea..	35,264	11	3	27.27	—	18.18	9.09	—	
Fitchburg..	33,848	7	1	14.30	28.60	14.30	—	—	
Taunton..	32,759	6	1	16.67	—	—	—	—	
Everett..	27,114	9	2	11.11	—	—	—	—	
North Adams..	26,583	6	—	33.33	16.67	—	—	—	
Gloucester..	26,121	6	1	16.67	—	—	—	—	
Quincy..	25,307	7	2	23.60	—	14.30	—	—	
Waltham..	24,612	7	1	14.30	14.30	—	—	—	
Pittsfield..	22,311	4	—	—	25.00	—	—	—	
Brookline..	21,679	8	1	12.50	25.00	—	—	—	
Chicopee..	20,390	2	—	50.00	—	—	—	—	
Medford..	20,014	4	1	25.00	25.00	—	—	—	
Newburyport..	14,478	5	1	—	20.00	—	—	—	
Melrose..	13,384	4	—	—	—	—	—	—	

Deaths reported 2,728; under five years of age, 763; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption), 602; acute lung diseases 465; consumption 297; scarlet fever 31; erysipelas 7; typhoid fever 34; whooping cough 7; cerebrospinal meningitis 8; smallpox 24; measles 39; diarrheal diseases 56.

From whooping cough, New York 2, Philadelphia 2, Baltimore 1, Lowell 1, Northampton 1. From cerebrospinal meningitis, New York 5, Lowell, Somerville and Gloucester 1 each. From scarlet fever, New York 17, Philadelphia 6, Pittsburg 1, Boston 5, Fall River and Cambridge 1 each. From erysipelas, New York 5, Baltimore 1, Boston 1. From measles, New York 25, Philadelphia 2, Pittsburg 4, Providence 1, Boston 3, Lowell 3, Weymouth 1. From smallpox, New York 2, Philadelphia 16, Boston 6.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Dec. 21, the death-rate was 19.3. Deaths reported 4,233; acute diseases of the respiratory organs (London) 393, whooping cough 78, diphtheria 76, measles 138, smallpox 24, scarlet fever 39.

The death-rate ranged from 14.3 in Portsmouth to 32.6 in Oldham; Birkenhead 18.8, Birmingham 21.8, Blackburn 20.0, Bolton 20.1, Brighton 19.0, Bristol 19.0, Burnley 19.3, Cardiff 19.6, Croydon 15.1, Derby 20.6, Halifax 15.9, Hull 16.4, Leeds 17.3, Leicester 17.4, Liverpool 22.1, London 18.7, Manchester 22.1, Newcastle-on-Tyne 18.1, Norwich 16.3, Nottingham 18.0, Plymouth 18.4, Preston 18.4, Salford 22.1, Swansea 21.5, West Ham 17.6, Wolverhampton 18.2.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 11, 1902.

W. B. GROVE, passed assistant surgeon. Ordered to the "San Francisco."

W. C. BRAISTED, passed assistant surgeon. Detached from the "Topeka," and ordered to the Naval Hospital, New York.

F. M. FURLONG, assistant surgeon. Ordered to Vicksburg, Miss., for duty at the naval rendezvous; and to the "Topeka" upon completion of recruiting duty.

E. O. HUNTINGTON, assistant surgeon. Detached from the "Columbia," and ordered to the Naval Hospital, New York.

F. L. BENTON, assistant surgeon. Detached from the Naval Hospital, New York, and ordered to the "Columbia."

C. F. STOKES, surgeon. Detached from the "Solace" and ordered to duty at Guam, L. I.

F. A. HESLER, surgeon. Ordered to remain on duty on the Asiatic Station.

J. R. Waggener, medical inspector. Ordered to the U. S. Steamer "Constellation."

W. A. McCLURG, medical inspector. Detached from the "Constellation" and ordered home to hold himself in readiness for sea duty.

#### SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of the Society will be held at the Harvard Medical School, Boylston Street, on Monday, Jan. 20, at 8 P.M. Paper: Dr. Joseph H. Pratt, "Anatomical Classification of Thyroid Tumors." This will be illustrated by lantern slides. Dr. M. H. Richardson and Samuel J. Mixer will read of the "Clinical Aspects of Thyroid Tumors"; Dr. J. C. Warren on "Thyroid Tumors."

ARTHUR K. STONE, M.D., Secretary,  
543 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY.—There will be a meeting of the Section for Obstetrics and Diseases of Women in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, Jan. 22, 1902, at 8 P.M.

Papers: Dr. T. Leary, "Pathology and Pathological Diagnosis of Carcinoma of the Uterus"; Dr. William R. Pryor, "Vaginal Hysterectomy for Carcinoma of the Uterus"; Dr. J. C. Irish, "Abdominal Hysterectomy for Carcinoma of the Uterus"; Dr. Albert H. Tuttle, "The Treatment of Cases of Carcinoma of the Uterus not Justifiably Treated by Radical Operation"; Dr. C. G. Cumston, "The Surgical Aspects of Carcinoma Uteri, Complicating Labor and the Puerperium."

The discussion will be opened by Dr. W. H. Baker of Boston, Dr. Homer Gage of Worcester, Dr. Luce of Portsmouth, N. H., Dr. Wood of Waltham and Dr. Garceau of Boston.

W. H. GRANT, M.D., Secretary.

#### APPOINTMENTS.

The following appointments have been made at the Boston City Hospital: Visiting Physician, Dr. Henry Jackson; Physician to Out-Patients, Dr. Franklin W. White; to act as additional third assistant visiting surgeons: Dr. F. J. Cotton, Dr. W. E. Faulkner, Dr. J. C. Hubbard; Medical Registrar, Dr. J. W. Bartol; Ophthalmic Surgeons, Dr. Allen Greenwood, Dr. E. R. Williams.

#### RESIGNATION.

DR. V. Y. BOWDITCH has resigned the position of Visiting Physician on the Staff of the Boston City Hospital.

#### RECENT DEATHS.

DANIEL WALDO STEARNS, M.D., M.M.S.S., died in Newton Jan. 9, 1902, aged 38 years.

DR. WILLIAM AUGUSTUS PIERREFONT of Brooklyn, N. Y., a great-grandson of John Jay, first Chief Justice of the United States, died on Jan. 6 from cardiac disease, at the age of 46. He was born in Brooklyn and was graduated from Columbia College and from the Columbia Law School in 1876. He then studied medicine, and was graduated from the College of Physicians and Surgeons in 1882.

DR. JOSEPH S. CARREAU of New York, whose clientele was principally composed of French-Canadian residents of the city, died on Jan. 7 from cardiac disease. He was a native of Canada, 53 years of age, and was graduated from the medical department of the University of the City of New York in 1874.

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## Original Articles.

## NOTES ON THE LIFE AND WRITINGS OF GERONIMO CARDANO.

BY CHARLES GREENE CUMSTON, M.D., BOSTON.

THE lives of the great physicians of antiquity and the Middle Ages cannot, I think, be devoid of interest to the present generation of the profession, and this may be particularly true of those men who are not generally known in medical science, and it is for this reason that I have selected the following biography.

Geronimo Cardano was certainly a curious personage even in his day, and his reputation is especially due to his profound knowledge of mathematical sciences and philosophy. His system of philosophy has been the cause of much eulogy in recent times, and, lastly, in his relation to us as physicians we must remember that at least one-third of his "Opera omnia" is devoted to medical subjects. His life, character and work offer to the highest point the most peculiar features. His career was an uninterrupted chain of misery, suffering and strife. He was born at Pavia on Sept. 24, 1501, although Haeser gives his birth as occurring in 1505, while Duruy places it in 1500. I believe, however, that the first date given is correct. As his mother was not married, she tried every method to procure an abortion, but without effect. It is said that she was 3 days in labor, and that finally the sectio cesarea was resorted to.

When Cardano was 4 years old he was taken to Milan, in which city his father practised in high repute, both as a physician and an advocate. In 1524 he went to Padua, and in the same year was admitted to the degree of M.A., while toward the end of the following year he received the degree of doctor of medicine.

Somewhere about the end of 1531 he married a poor woman, he himself being in the most complete misery. During the previous 10 years his impotency hindered him from having knowledge of a woman, which was a great mortification, and he attributed it to the evil influences of the planet under which he was born. When he enumerates, as he does in more places than one, the greatest misfortunes of his life, this ten years' impotency is always foremost among them.

At the age of 33 he became professor of mathematics at Milan, and 2 years later he was offered the professorship of medicine at Pavia, which he refused, as there was little likelihood of receiving a regularly paid salary. In 1539 he was admitted a member of the College of Physicians at Milan, and in 1543 he read public lectures in medicine in that city and at Pavia the year following, but discontinued them because he could not obtain payment of his salary, and he returned to Milan. In 1547 his friend Vesalius procured for him, from the King of Denmark, an offer of a pension of 800 crowns and his table, which he tells us he refused on account of the severe cold of

the climate, and also because to be well received in that kingdom he would be obliged to renounce the Catholic religion, in which he had been bred. In 1552 he went to Scotland, having been sent for by the Archbishop of St. Andrews, who had applied in vain to the physicians of the King of France, and afterwards to those of the emperor. This prelate, then about 40 years of age, had been afflicted with a shortness of breath for about 10 years, and which had returned every week for the past 2 years. He began to recover from the moment that Cardano prescribed for him. The latter took his leave of the archbishop in about 6 weeks' time, leaving him his prescriptions, which in 2 years wrought a complete cure.

Cardano's journey to Scotland gave him an opportunity of visiting several other countries. In journeying there he crossed France, and returned through the Low Countries and Germany, along the banks of the Rhine. It was on this occasion that he went to London and calculated King Edward's nativity. This tour consumed about 10 months, after which, returning to Milan, he continued there until October, 1552, and then went to Pavia, whence he was invited to Bologna in 1562. He taught in this latter city until 1570, at which time he was thrown into prison for debt, but some months after was sent to his own house but was not restored to his liberty until some little time afterwards.

In 1571 Cardano went to Rome, where he lived without any public employment. He was, however, admitted a member of the College of Physicians in that city and received a pension from the pope. According to Thuanus, he died at Rome Sept. 21, 1575, while other historians place his death in 1576. Before his death he had the misfortune to witness the execution of his son charged with poisoning his wife.

From what precedes it would appear that Cardano was of a very fickle temperament, but one will have a much better idea of his singular and odd turn of mind by examining what he himself tells us, concerning his good and bad qualities, in his "De vita propria": "Nature has given me talent for manual work, a philosophical mind adapted to the study of sciences, full of taste, a good character, voluptuous, gay, pious, inconstant, friend of wisdom, inclined to meditation, inventive, full of courage, prompt, defender of good things, inventor of new things, an enemy of the *vox magistri*, of moderate habits, interested in everything related to medicine, zealous for miraculous things, architect, mocker, sober, industrious, laborious, diligent, only living from day to day, frivolous, never forgetting an injury, contemptuous of religion, envious, sad, traitor, setting snares, magician, enchanter, miserable, hateful, lubric, solitary, slightly sympathetic, severe, divine, jealous, lascive, obscene, obsequious, fond of conversation with elderly people, etc."

Besides this enumeration, he boasts in other parts of his writings of possessing qualities, perhaps it were better to say properties, of a hyperphysical nature, and he enters most voluntarily



into ecstasy. He makes objective the products of his imagination with such force that he says that he could see them, not with the eyes of the soul, but with those of the body. He was forewarned by dreams of everything that was to happen to him, and the future was indicated by certain marks which appeared upon his finger nails, as it occurred to him especially more forcibly at the time his son was imprisoned for his crime. Like Socrates, Cardano possessed an easy genius that he has defined in the dialogue entitled "Tetim"—"a venereal genius mixed with Saturn and Mercury."

Leibnitz, who was well versed in the merits and talents of Cardano, has said that he was a very great man with all his defects, and without them would have been incomparable. Cardano certainly occupies a more distinguished place in the history of the progress of philosophy and mathematics than in that of medicine, but he has composed a large number of works relating to the healing art, some of which are still possessed of much interest, and they certainly greatly contributed to break the chains of ancient Arabic Galenism. Cardano had as motto, "*Tempus mea possessio, tempus ager meus.*" He has justified the choice which he made in this selection, as is proven by the 222 treatises contained in the 10 volumes which compose his entire works, which are not even complete, and I will only mention here those treatises which directly apply to medical science.

"De libris propriis." Nuremberg, 1544.

"De libris propriis eorumque ordine et usu ac de mirabilibus operibus in arte medica factis." Lyons, 1557.

"De libris propriis eorumque usu liber recognitus." Bale, 1562.

"Contradicentium medicorum libri X." Paris, 1546; Lyons, 1548; Antwerp, 1564; Marburg, 1607. The first two editions are incomplete.

"De Sarza-Parilla," published with his "Contradicentia medica." Lyons, 1548.

"De subtilitate libri XXI." Nuremberg, 1550, and Paris, 1551. A fourth edition published at Bale in 1560 contains additions and a refutation of Scaliger's criticisms. Other editions have appeared. This is certainly Cardano's masterpiece, and it contains striking proofs of his great knowledge and superior intelligence, and also in many instances his puerility and want of system.

"De rerum varietate libri XVI." Bale, 1557.

"In Thesalicum medicum actio secunda." Bale, 1562.

"In septem particulas aphorismorum Hippocratis commentaria." Bale, 1564.

"De venenis libri tres." Bale, 1564.

"De methodo medendi sectiones tres." Paris, 1565; Marburg, 1607. The first two sections of this work were published for the first time at Venice in 1545 under the following title: "De malo recentiorum medicorum medendi usu libellus centum errores illorum continens. Item alius de simplicium medicinarum noxa."

"Podagræ encomium," in his "Opuscula medica et philosophica." Bale, 1566.

"De aqua" in the second volume of his "Opuscula medica et philosophica." Bale, 1566. In this same work will be found "Liber de vitali aqua, seu de æthere."

"Medicinæ encomium," in his "Opuscula medica." Bale, 1566. In the first volume of this work will be found "Ars curandi parva," and in the second volume will be found "De radice china responsum petitioni M. Antonii Majoragi."

As to Cardano's works, their analysis is surrounded by the greatest difficulty, because on every page there is a want of order; there are contradictions, hesitations, repetition, in fact, their study is rendered very difficult. His medical

works comprise more than four volumes of his "Opera omnia," and are composed of a multitude of opuscles and short treatises which succeed each other without any order and are in no way related to one another. Upon reading them one is constantly reminded of the author's preoccupation to write in order to make the greatest number of pages, and he admits himself that he was paid by the page, and so made money by his prodigious knowledge. In spite of all these defects one cannot but see that he had a logical and lucid mind, that he was an observer.

He considers nature as the ensemble of things and beings, and the ternary division of the universe he admits, but he has reduced it to an entirely mathematical abstraction. He distinguished three principles in nature, namely, matter, which is the soul of the world, and whose principal function is movement and intelligence. Under its multitude of varieties matter is unique and eternal, two modalities of force constantly acting on it in order to describe the cycle of the four elements. The four elements are heat, which is the symbol of life, the humid, which represents inertia and inorganization.

All bodies are susceptible to movement and all have a vegetative soul. Intellect is one; it envelops all beings. "There is *sub luna* only one intellect, and this intellect is only human as far as human matter can admit it; it penetrates man and by so doing produces in him acts of intelligence. This same intellect surrounds the lower animals, but on account of the disproportion of matter, its entrance within them is prevented. Thus it illuminates the interior of man, and only sheds rays around the lower animals. There is no other difference in this intellect of men and that of beasts, and from this it arises that what is perfect in the human being is confused in animals." Cardano also admits the existence of an intermediary agent between the two worlds or the two extreme principles, namely, God and Matter. In order to designate it, he employs the same term of *spiritus*, which is already met with in Bacon, Arnauld de Villeneuve, and Cornelius Agrippa. In his "De usu ciborum" an entire chapter is given up to the study of this element, which serves as the link between the human body and the divine principle.

He also deducts important consequences in the medical point of view for the treatment of diseases which are inflicted by the *spiritus*.

As a disciple of the doctrine of concordances he admits that the poisonous action of things should be attributed to occult sympathies or antipathies, which unite the planets, living beings and men; and very logically he advises, besides a physical treatment, a kind of psychical cure. In another part he groups all the poisons—the word poison being taken in its most general meaning—as some arising in the human body and others coming from air and water of bad quality. A third group contains poisons properly speaking, while the fourth includes the venoms, some being entirely deprived of a material substratum; these



are the incantations, magic works (?) and philters. Others have a certain material substratum, as fascination, whose effect is produced by a visual emission. He is imbued with the idea that lower beings are in concordance with the superior, and believes in astrological medicine, and an entire passage in his book "*Contraicentrum medicorum*" treats of unfortunate days in the point of view of astrological medicine. And again, in this same book, he mentions epidemics that he attributes to the influence of the constellations.

In his pathology a very important place is reserved to those diseases produced by evils, and he describes the symptoms which are variable according to whether they relate to a fascination or a sortilege. He describes a person who is fascinated as having a whitish color of the skin, with a sadness in the eyes, crying often, suffering and sad. A person who has become ensorcelled is always exalted. He speaks much. The eyes are brilliant. The thoughts follow in rapidity. Sleep is absent and the subject emaciates in a few days.

Such are the theories which govern the medical science of Cardano, and consequently it is easy to foresee how very strange and marvelous would be his therapeutics. For the application of ordinary remedies, or physical means, one principle seems to dominate, namely, "*Similia similibus curantur.*" In his "*De rerum varietate*" he says that nature is powerfully aided by similar things, and as an illustration he says that the milk of the ass, the uterus of the hare, or the testicles of the buck will greatly aid in the production of pregnancy. Further on he says that the contraries repel each other, as, for example, when blood has been separated from its serum and dried in the sun it will act as an hemastatic.

Being at the same time scientific and, perhaps, somewhat credulous, he mentions a number of marvelous cures, which he gives as authentic, and only uses his strongly critical mind for the discussion of explanatory hypotheses.

Among other passages there is one which is interesting because it shows us that from an experiment he undertook upon himself he endeavored to eliminate all causes of error. Laurentius Gauscus Cherascius, who was an empirical physician of Tours, had a most remarkable magnet which if a stylet was rubbed on it the instrument could afterwards be made to penetrate a limb without giving rise to any pain to the patient. Cardano heard of this and undertook the experiment on himself. It was successful, because he hardly felt the slightest pricking sensation, and but a drop of blood was seen in the wound. In telling of this experiment he examines all the hypotheses which could possibly come to his mind, in order to explain this prodigy by a deceit, and he only arrives at the conclusion that this magnet had a real efficaciousness.

Nevertheless, neither his logical mind nor his excellent critical judgment can prevent him from relating facts such as these: A man bitten by a mad dog ate a crust of bread, after having had the finger pierced three times, reciting each time

the five dominical orations for the five wounds of Christ. He was cured. Here is another: Charles Zenus, the Venetian, received a very severe wound of the knee which no remedy could cure. A physician applied a remedy on the other knee and the wound closed.

Here is a sample of Cardano's personal treatments: In order to cure a toothache, a porous body, such as certain barks or roots, should be placed between the thumb and index finger.

He also speaks of odontalgia, and it is interesting to note that he discovered by chance on himself a kind of magnetic process by which this kind of pain could be calmed, and I here give Durey's literal translation of this passage: "I had a violent toothache occurring in the last two teeth of the left upper jaw; the pain extended to the other teeth, the nose, the eyes, the ear; no remedy acted on it. I endeavored to separate the teeth with the right hand, without any other result than to increase the pain; finally, by touching lightly, with the left thumb, the external aspect of the most painful tooth, and with the index the internal part, the pain lessened, decreasing all the more the lesser I touched the parts. I have repeated this experiment more than twenty times with success, until all the pain had disappeared."

There is no doubt whatever but that the medical writings of Cardano were the means of throwing off the yoke of Galen's old system, as modified by the Arabians, or at least they contributed largely to this end. For example, his judgment is certainly excellent when he advises the examination of the urine, from which diagnostic signs could certainly be derived, and believing them to be very certain, he departed from the teachings of Galen and Avicenna. He very well appreciated the signs that could be drawn from black urine, and at the same time reproached Galen for his want of observation, and he pretends, contrary to Galen, that sediment in the urine is not, properly speaking, the immediate product of coction, and contradicts the ancient theory by saying that coction may occur at the beginning of even an acute disease.

It is to be regretted that Cardano took so little time in the study of anatomy, although in many parts of his works he strongly recommends its study. If he had had more extensive knowledge of the human body he would have been able to have pronounced himself in a more decisive manner upon certain objects of theory, and would not have rendered himself culpable of several very great errors. Among others, he upheld that the heart did not have a single nerve. He pretends that Averrhoës only placed the origin of the nerves in this organ simply because he was led into error by white patches which were occasionally present upon its surface, and by its substance, which is very similar to that of nerves.

In other parts of his writings he believes that the heart has a sensibility, and admits three different sensitive faculties. The first is complete, and is the result of influence of the nerves, consequently only slightly marked in the superficial

part of the heart and entirely wanting in its interior. The second is incomplete, and only occurs in a pathologic condition or in the tendons and ligaments which during health are deprived of all sensibility. The third is seated in the soul itself, in which the heart, which is the source of life, also takes an active part.

He very ably and precisely demonstrated that the various functions of the soul were localized in various parts of the brain, and he says that this opinion in no way influences the method of treatment.

The muscular fibres and the vessels are not attracted to each other, but are formed by attraction.

I would here remark that Cardano was fully aware of the discovery of Fallopius, but he did not fully seize its import.

He does not believe that putrefaction of the atmosphere is an etiological factor in contagious diseases, excepting when the atmospheric vapors become altered. Cardano upheld that mucous secretions coming from the nose and throat were not always derived directly from the head, and that very often they were produced by the organs of secretion located in the mouth and nose, so that in reality he preconceived the great truth which later was so convincingly demonstrated by Conrad Victor Schneider. He taught that the mucous secretions developed outside of the vessels, which then absorbed them and carried them throughout the economy in the circulation to different organs, and disproved the theory that the various humors developed directly in the organs themselves and are then exhaled by them into the cellular tissue. Cardano also says that it not infrequently happens that unsalted mucus turns into bile and that salted mucus may transform into atrabile.

Besides the various kinds of bile described by Galen, Cardano adds a number of others. He states that putrid fever is directly due to an overheating of the blood and to changes taking place in the humors which become separated from this fluid, because the blood itself can never undergo putrefaction. He upholds that the blood is imperfectly prepared in the liver but is perfectly so in the heart.

He mentions the fact that frequently after having observed all the symptoms and signs of phthisis during life, at autopsy the lungs will be found perfectly normal, or only presenting a few small tubercles.

His manner of relating the histories of some of his cases readily demonstrates that he has done so with no other end than to satisfy his vanity. As an example of this, he says that out of twelve physicians he was the only one who was able to discover a disease with which a certain countess was afflicted, the other physicians believing that she was pregnant, while Cardano demonstrated beyond a doubt that the patient was afflicted with a hydropsy of the uterus. In another instance Cardano was called in consultation with other practitioners, and he declared that the disease

was opisthotonos, and all his colleagues ridiculed him upon the dissonance of such a barbarous word, but he cured the patient completely by frictions with oil of chamomile, and mithridates. He also states that he has cured several cases of leprosy and phthisis, and in this latter affection he employed a dilute solution of sulphuric acid, powdered orris root, syrup of rose, and one or two other preparations.

Sprengel asserts that Cardano was afflicted with diabetes, and that for a time he daily voided 100 oz. of urine; and Cardano himself relates the case of another person afflicted with this disease who voided 36 lbs. of urine daily, although only 7 pounds in weight of food and drink were ingested.

Cardano's theories relative to the general effects produced by baths are most interesting, and he ardently combats the ancient Galenic indication of "*contrarie contrariis opponenda*." He points out that this law is not susceptible of having a general application because, for example, a diarrhea may be cured by purgatives. He also raises his voice against the ancient prejudice of giving wine to patients afflicted with fever, and he condemns the use of distilled waters which have neither taste nor smell, because they are not only useless, as they possess no predominant property, but they may even be deleterious on account of the metallic particles with which they are impregnated, and which are derived from the walls of the receptacles in which they are distilled. Cardano believes that it is unwise to administer light laxative medicines in the beginning of all acute diseases, and also that it is better not to defer blood-letting in these affections for too long a time, because this operation is one of the most important means by which we may moderate a too considerable afflux of the humors. He also believes that purgatives should be administered after the maximum of the disease has been reached, and that blood-letting is a most dangerous practice during menstruation, towards the decline of most all types of fever, and believes that this practice is, generally speaking, a salutary one.

He points out that blood-letting and blisters are not indicated in every case of apoplexy, and that paracentesis should not be performed in those cases where the fluid collection is due to a disease of the liver, when resource has not been had to other means and when congestion of the organ has slowly taken place.

Cardano knew without any doubt the curative virtues of metals, because he says that a thin plate of gold will prevent headaches if it be placed on the coronary suture. If placed upon the cardiac region it will calm palpitations, and will soothe the pains of nephrolithiasis when put in contact with the lumbar region. We have here an entire system of therapeutics, because it is to the power possessed by metals that he attributes the curative virtues of the seals and bracelets of the royalty. He believes that not only metals enjoy such properties, but that precious stones are also of value. Thus he states that jasper will control hemorrhage,

that coral is excellent for a weak heart, and that the sapphire will cure the plague.

The therapeutic virtues of gems and metals are only a particular branch of the doctrine of universal concordance. Gold has not in itself a value, but it is directed by the sun which infuses a part of its virtues into the metal. It is the same with silver, which is acted on by the moon; lead, which is influenced by Saturn, and copper by Mercury, etc. If this idea be analyzed it is easy to see that if the time is chosen at which the sun has its maximum of influence, the therapeutic strength of gold will be increased if applied at this time, and if it is placed on a part of the body which is submitted to the direct influence of the sun, and, still more so, if the subject has been born tributary to the sun, the action will be all the greater. From this example we see how all the occult theories on astrology and metallotherapy are intermingled. For example, seals do not act on account of the figures engraved upon them; their action is dependent on the accord established by the thaumaturge between nature, the composition of the seal, the course of the stars and the nature of the being to whom they are destined.

Cardano also was conversant with the procedures of cures produced by sympathy, as can be demonstrated by the following example, which he relates in his "De rerum varietate": In order to cure a quartian fever, all the urine voided by the patient during the attack should be mixed with flour and then scattered along the road with the hope that a hungry dog may devour it, and if this should come to pass the animal will contract the fever and the patient will be cured. Cardano also relates the following case: A patriarch, by name Castelnovo, suffered with toothache for three days, and this is the way he was cured by a sorcerer. The latter took a nail and with it wrote a few enigmatic lines upon a tablet, touched the diseased tooth three times with the nail, and then drove the latter into the tablet upon which he had written. The pain ceased immediately, and the sorcerer promised that it would never return if the nail remained stuck in the tablet, and in point of fact, for the 16 years that the patient lived afterwards, he never had a return of his toothache.

In his "Contradicentrum medicorum" Cardano says that for a long time it has been questioned whether enchantments could serve as therapeutic means, and he concludes that in certain cases they may be useful. Facts corroborating this had been recorded by Dioscorides, Aristotle, Avicenna, Avenzoar and others, and Cardano himself relates several, as, for example, where a man was in a most desperate condition on account of having been struck by lightning, and who was cured by inunctions made with oil and wool.

Cardano endeavors to scientifically explain these cures, and says that one should admit that there is in nature many things which remain enigmas, and it is only from time to time that an explanation may be given to them. On the other hand, in cases of cure such as these, one should

attribute a certain rôle to the influence of the imagination, which so frequently transforms the thoughts and sensations of man, and whose action is in many instances so rapid. And although this action may have been most insignificant it should, nevertheless, be still taken into account, because physicians know better than anybody else that very trifling causes will oftentimes produce very great and marked effects upon the human organism. He also believes that one should admit that the mind of one man may act on that of another by its proper force, by modifying the *spiritus* of the one upon whom he wishes to bring under his influence, and, thanks to this mysterious action, the individual undergoing the incantation becomes to a certain point the tool of the enchanter. Cardano also points out that similar facts may occasionally result from the action of the will of the individual upon himself. Certain people are especially endowed with a gift to influence others, because mental power varies in degree from one subject to another, and, in short, one should admit that magic operations are occasionally useful in medicine, and for this reason their employment should be allowed when the end to be obtained is to effect a cure. If they do not always succeed, that is no reason why the physician who employs them should be termed an impostor, because, like all forces, the one necessitated by the incantation may present oscillations, or even a complete cessation in an individual who oftentimes is in possession of this gift.

To quote further from the works of this brilliant mind would be interesting, and would carry us far beyond the intended limits of this short biographical sketch, but I have endeavored to show, in what has already been extracted from his writings, that Cardano was a great physician and observer of mankind. From the various works on medical history and from the original works of Cardano himself that I have been able in the past to consult, I cannot but think that he did not believe sincerely in the occultism and the mysterious magic in which his works abound, and that all that pertains to them was only written in order to increase the number of pages for which he was paid.

#### LYMPHATIC AND PORTAL INFECTIONS FOLLOWING APPENDICITIS.<sup>1</sup>

BY JOHN C. MUNRO, M.D., BOSTON,

Assistant Visiting Surgeon, Boston City Hospital.

PORTAL or lymphatic infections, singly or combined, following appendicitis, are not so rare as many would have us believe. The obscurity of the symptoms, often insidious, at times fulminating, the difficulty in determining a lesion of the appendix, even when suspected, tend to confuse a group of symptoms already variable. In a paper published in the "Proceedings of the Philadelphia County Medical Society for December, 1900,"

<sup>1</sup> Four of these cases were contributed to the last series of the Boston City Hospital Medical and Surgical Reports.

and in the *Therapeutic Gazette* for January, 1901, I reported 14 cases of these infections, 11 being confirmed at operation or autopsy. To emphasize the clinical picture, I wish to add 6 more personal cases; it may help to establish more fully the conclusions that I ventured to make.

These conclusions, in brief, were that the degree of lymphatic infection is not dependent on the extent of the appendiceal inflammation, a mild chronic appendicitis at times giving rise to a severe lymphangitis; that the lymphatic disturbance may date its origin from an appendicitis occurring many months beforehand; that persistent fever without other evident cause should suggest one or both of these infections; that spasm, tenderness and fulness (spasm of the quadratus lumborum) indicate a retroperitoneal infection possibly due to appendicitis; that chills and hepatic tenderness, associated at times with jaundice, may be of appendiceal origin, and that this origin, especially in obscure cases, should be sought for most carefully in physical examination, in the personal history, and, if necessary, in abdominal exploration; that prompt and thorough drainage of the liver, together with the removal of the inflamed appendix, offer the best means for recovery; that abdominal section, with definite free exploration of all abscesses within reach, is far more satisfactory, not more difficult, and less dangerous than aspiration.

In reviewing the hepatic cases, one is impressed with their gravity, both from the difficulty of opening all or most of the abscesses, and from the hopeless struggle against the general emaciation and sepsis if the case is allowed to go on to extremes. That all abscesses of the liver are not scattered is shown by the result of 20 autopsies reported in the "Presbyterian Hospital Reports" for 1900, page 157, where single abscesses were found in 13 cases, in addition to 3 cases of recovery after operation, where there were presumably single abscesses; that is, well over half did not have multiple abscesses; probably a better showing than if all the cases had been primarily infected from appendicitis.

Moreover, cases are known to recover by bursting outwards spontaneously into the lung or elsewhere, and even if there may be more or less scattered foci, it is not improbable that many of them will be taken care of by nature, provided the large abscesses are drained.

The superficial abscesses are easily recognized as small or large yellow swellings; when deeper they give the feeling of gummata, but when too small or too deep to be detected in this way the surrounding liver area is boggy and somewhat indurated, but this type is difficult or impossible to drain. For exploration I much prefer a grooved director; it causes less bleeding, the opening can be easily dilated to admit the finger, which will break down the walls of contiguous cavities. Gauze packing usually controls all dangerous bleeding.

It is true that other and commoner lesions may be mistaken for these infections. Cholecystitis,

cirrhosis and pyelitis have been explored, not so much from positive belief that the lesion was lymphatic or portal, but because if there was a reasonable possibility that such might be the case, it was better surgery to explore too early rather than too late.

Practically all lymphatic infections are curable by operation. Only a rare case of hepatic infection will be cured, but if the cases are allowed to go on until they become septic skeletons before operation, the chances are almost hopeless.

In brief, a persistent temperature, during or following appendicitis, inconsistent with other lesions, and associated with lumbar spasm, should suggest a lymphangitis. More or less, perhaps fleeting, jaundice, irregular chills, hepatic tenderness and progressive emaciation should suggest a portal pyophlebitis following appendicitis, present or remote.

In illustration I will very briefly report 6 cases:

CASE I. E. C., male, age 11. Previous attacks probably appendiceal. In third day of present attack, appendix with gangrenous mucous tube and portion of mesentery removed; drainage. Two days later, the local condition being satisfactory, chill followed in 6 days by marked hepatic tenderness and jaundice. The chills and jaundice continued more or less irregularly, while the general condition steadily and rapidly grew worse. Thus losing ground until he resembled a victim of the India famine, operation was allowed 3½ weeks after the appendectomy. Incision through the right rectus exposed a swollen left lobe in which several abscesses lying about half an inch from the under surface were opened, broken down freely and drained. A second incision from the tip of the last rib exposed the misplaced right lobe in which a large cavity about 2 inches in diameter was opened and drained, the neighboring tissues being broken up quite freely. The operation was well borne. Afterwards the condition improved somewhat, the temperature falling to normal and the pulse to 100 to 110. For a fortnight it seemed as though he would recover, when he suddenly collapsed and died. Unfortunately, no autopsy was allowed.

CASE II. H. C. B., male, age 35, entered the medical side, with acute appendicitis and jaundice. Three previous attacks probably appendiceal. An up-and-down, irregular temperature for a month, with occasional chills, varying jaundice and increasing leucocytosis and a steady, progressive emaciation. When transferred for operation there was emaciation, sepsis, cyanosis, slight jaundice, doubtful appendiceal tenderness, enlarged left lobe and spleen.

Operation.—Median incision. Uniformly swollen left lobe with deep abscess easily felt, which was opened and drained. Right lobe explored but no abscess found. A subacutely inflamed appendix was removed quickly through a second small incision. In poor condition at beginning and close of operation. Slight improvement followed for a few days; death 8 days after operation.

Autopsy showed a left subphrenic abscess; enlargement of all mesenteric glands; mesenteric and portal pyophlebitis; portal veins through left lobe dilated and containing pus; in right lobe, particularly towards right superior surface, numerous small abscesses arranged in clusters, 3 to 5 cm. in diameter. Smears from portal vein and subphrenic abscess showed streptococci.

The subphrenic abscess was overlooked at operation, the low level of the spleen and left lobe being apparently due to general enlargement. Could the patient have stood anything but a hasty operation, it would probably have been detected.

CASE III. T. A. T., male, age 17. Operation by Dr. Nichols in second attack of appendicitis, on the

fourth day; suspicious jaundice of sclera at this time. The wound behaved well, but varying jaundice persisted, with chills, delirium, increased liver area and tenderness, and marked emaciation. At close of 2 weeks the liver was explored. Right lobe swollen and edematous but no pus found on exploration. A large softened retroperitoneal gland opened and drained of foul pus; several smaller but not softened glands felt. Eight days later again explored, and a necrosis of the ascending colon found, together with a small broken-down gland in the iliac fossa, at some distance from the group found at the preceding operation, this group having practically disappeared. Death 2 days later.

Autopsy showed thrombosis of the superior mesenteric veins and branches; suppurating pyophlebitis with multiple abscesses of the liver 1 to 2 and 3 cm. in diameter; 2 ulcers of the cecum (1 perforated at operation), chronic tuberculosis of the retrocecal lymph glands.

One cannot exclude the rôle that the 2 cecal ulcers may have played in the formation of the liver abscesses, but in all probability the appendix furnished the infectious material. The abscesses were too small and scattered to be drained, and the hopelessness of the case was much increased by the necrosis of the gut and the lymphatic infections. All this might have been avoided by an appendectomy following the first attack.

Finally, to show that a fatal lymphatic infection may follow an interval operation, the following case is reported:

**CASE IV.** Mrs. E. A., age 33. Severe attack of acute appendicitis 2 months before operation; in bed 4 weeks and then an invalid for 4 weeks when a twisted, adherent appendix was removed, the base being ligated with catgut and the stump covered with a peritoneal cuff sutured with fine silk. Progress good for about a week. On the twelfth day, under chloroform, incision to outer side of the aseptic wound, opening from behind the peritoneum a small limited abscess in the region of the stump. The discharge persisted from the last wound without improvement in the general condition, and 4 weeks later Dr. H. W. Cushing opened a foul subphrenic abscess. In spite of this the patient steadily lost ground and died 7 weeks after the first operation.

Autopsy showed no adhesions to the first scar; second incision entering cavity at region of appendix whose origin was healed. Pelvis walled off by firm adhesions and filled with dirty pus. No direct connection with the appendix was noted but may have been present. Pelvic organs normal; under surface of right lobe of liver and especially of gall bladder firmly adherent to duodenum. Abscess in right pleura; incision into this cavity, passing through diaphragm to region of under surface of liver where there was a small amount of dirty pus. Mesenteric glands prominent and reddish.

It is unfortunate that the stump was treated by the cuff method, rather than by the safer inversion method. It is barely possible, though it does not relieve the responsibility, that the lymphatics infected at the original attack of appendicitis needed only the operation-infection to start the final explosion. The pelvic accumulation was, of course, due to one or the other of the operations, but was never detected as serious enough to warrant interference.

#### REPORT OF ADDITIONAL CASES.

**CASE V.** Edna B., age 11, entered my service at the City Hospital on Oct. 4. Her first attack of appendicitis took place 8 months before, with chills, fever and

vomiting. Since then there had been 3 attacks, the last one beginning 5 days ago, with sudden sharp pain, vomiting and chills. On the day after entrance, my colleague, Dr. Lund, removed a gangrenous appendix, inverting the base into the cecum and draining the area.

Two days after operation, following a good defecation, the temperature fell to normal and the pulse to 120, but the following day the temperature rose to 102°. She looked badly and began to exhibit tenderness along the right loin and right costal margin, followed on the sixth day after operation by jaundice, epigastric tenderness, but without chills. Under chloroform an incision was made through the right rectus, allowing free escape of a large amount of dark serum from the general cavity. The left lobe especially of the liver was found greatly enlarged, so that the large fissure was pushed well over into the right hypochondrium. Exploration of the liver failed to discover pus. Examination of the appendix region proved negative; hepatic wound drained. Following this, emaciation increased and the pulse and temperature remained high.

Seventeen days after the last operation the liver was again explored under chloroform, and a cavity holding a few drachms of pus was found in the front of the left lobe. After this the emaciation steadily progressed until the patient looked like a skeleton, and on Nov. 9, 7 weeks after the original operation, she died.

Autopsy showed the portal vein occluded by a soft purulent adherent thrombus, extending to the right and left branches in the liver. Smaller branches filled with bile-stained purulent material. Same process found throughout the upper portion of the superior mesenteric vein and through its iliocecal branch to the appendix. Its other branches were normal, as were also the splenic, gastric, pancreatic and inferior mesenteric. Section of the liver showed both right and left lobes honeycombed with abscess cavities from .5 to 2.5 cm. in diameter, containing thick yellow pus. The greater confluence of these cavities was in an area a little to the left of the centre of the right lobe, involving the substance throughout a space as large as the hand, which appeared almost as one large abscess. Similar smaller areas were found in the lower posterior portion of the left lobe.

**CASE VI.** David S., age 16, fisherman, entered Dr. Monks' service at the City Hospital, and through his courtesy I have been allowed to examine and report the case. Two years before his present illness, he was ill for 3 months with right iliac pain, vomiting, jaundice and chills. Ten months ago he had a similar attack lasting 3 weeks. Twenty-four hours before entrance he had a sudden attack of appendicitis. Dr. J. B. Blake operated as soon as he was brought to the hospital, and removed a perforated gangrenous appendix, draining the wound. Five days later, although the local condition about the wound was satisfactory, he complained of tenderness over the liver and the sclera became yellow. Ten days after entrance, the jaundice was very marked, the temperature, outside of occasional chills, still remained high as at entrance, varying from 100° to 104°, the pulse varying from 110 to 140. The region of the liver was very tender on palpation. After this he rapidly emaciated and grew weaker until death 14 days after entrance.

*Autopsy.*—Between the liver and diaphragm were numerous firm fibrous adhesions. Adhesions also marked between gall bladder and colon, between colon, gall bladder and duodenum, and between liver and right kidney. The veins of the ileocecal valve to the middle portion of the small intestine, to the spleen and to the stomach, contained thick, dark, grayish-red fluid. Towards the liver the fluid became lighter in color and more distinctly purulent. The veins of both lobes were full of blood-stained pus. Hepatic vein and inferior cava normal.

The right lobe was honeycombed with abscesses of varying size, the largest being 3 cm. in diameter. They were most numerous in the central and anterior portions and were almost coalesced to form a large

cavity. In the left lobe the process was confined to the veins which were filled with yellow purulent material.

The father of the patient stated that in each of the preceding attacks the illness had been more severe, and yet recovery had followed without interference. Partly on that account it was deemed best not to explore the liver by operation.

#### NOTES ON THE MANAGEMENT OF THE ANESTHETIC IN OPERATIONS ON THE RESPIRATORY TRACT.

BY HARRIS PEYTON MOSHER, M.D., BOSTON.

IN operations about the nose and mouth the management of the anesthetic has always been unsatisfactory, the reason of course being that in using a cone or an inhaler, the etherizing and the operation can not be carried on together. In order to remedy this, various forms of apparatus have been devised for forcing ether through a tube placed either in the mouth or in the nose. Neither of these is an available method if, as in the ordinary operation for the removal of tonsils and adenoids, work has to be done at the same sitting on both the fauces and the pharynx. With these cases the usual procedure is to put the patient under ether with a cone and then to operate more or less on the fly as the patient is coming out. The result is often rather stormy. Most of the time is taken up etherizing; little time is given for operating; no time for quiet operating.

There is a form of apparatus, however, which obviates this. The principle of it, namely, forcing ether vapor through a tube by means of a bellows, is not new. Neither is the apparatus in its present form new in the sense of being untried, because it has been used in cleft palate operations for the last three or four years. It would be difficult to give it a much harder test. A cleft palate operation etherized after the usual method is very tiresome for all concerned.

I saw this apparatus for the first time just as I was coming from etherizing a case of tonsils and adenoids. I had used a cone and had had the customary half-satisfactory result. I stepped in to see a case of cleft palate operated. The operator was working as quietly and continuously as if he had been working on the foot. The etherizing was accomplished by playing a stream of ether vapor over the patient's mouth. A water bath kept the ether from freezing in the bottle in which it was vaporized, and the ether was forced through the tube and into the patient's mouth by a bellows. A valve in the stopper of the ether bottle gave the etherizer a simple method of administering any strength of ether and air desired. A shielded alcohol lamp kept the bath warm. There was no undue amount of ether in the room; there was no tube in the mouth to bother the operator; no catheter in the nose and pharynx to gag the patient. I asked the privilege of trying this apparatus in nose and throat work, ob-

tained it easily, and found the apparatus to fill the want I had felt in managing these cases.

The apparatus was brought to its present form by Dr. Thomas Fillebrown and his assistant, Dr. M. F. Rogers. Through their kindness I have had it placed at my disposal.

What I have said explains the great advantage of this apparatus in general work about the mouth and throat. There are, however, a few other points connected with the management of the anesthetic in such cases, especially cases of tonsils and adenoids, which I wish to speak of.

It has been abundantly proved that chloroform is dangerous in adenoid cases or in cases where much mucus is developed. The reason is not wholly clear. One explanation which has been given is that the mucus tends to imprison the chloroform vapor, and so lead to an overdose. Nitrous oxide gas alone, as it is used in England, does not give a long enough working period for the nice cleaning of the mouths of the Eustachian tubes. It is possible to give gas for an extended period, but the resulting blueness is very disquieting in an operation where there is always danger of getting blood in the trachea, and where one of the signs of this dangerous complication is marked and persistent blueness. On the other hand, gas can be used with advantage in starting the anesthetizing with older children and with adults. With infants the battle of etherization is so soon over that the use of gas is hardly worth while. Less vomiting follows if gas is used to start with, and the patient does not seem to get so saturated with ether afterwards, and comes out sooner. These are two distinct advantages.

Next to the quietness of the etherization, the position of the patient and the proper holding contribute most to the comfort of the operator and to the speed of the operation. In the matter of position, the point to be aimed at is to get the light on to the part which is being worked upon. The upright position accomplishes this best. There is less bleeding if the upright position is used and it stops sooner. In this position the head can be bent back and turned to the side so as to show either tonsil, as required. Further, if the head is regularly tipped forward the blood will run out the nose and mouth instead of down the throat. Simple as this little manœuvre seems, it is of the greatest importance. In the days when this procedure was not followed, the head was held bent back and constant swabbing was necessary in order to keep the blood from running down into the pharynx in such quantities as to endanger the trachea. Then, even more than now, a possible tracheotomy was the bugbear of every throat operation.

The manner of holding the patient deserves a word. Most nurses, unless they have been told to do otherwise, hold the patient's body close to theirs. This does not allow room to throw the patient's head far enough back to get the proper light. The arm of the nurse should lie in the bend of the child's hips. If the patient is anything more than a baby a nurse can be dispensed





FIG. I.—Nurse holding child in proper manner.

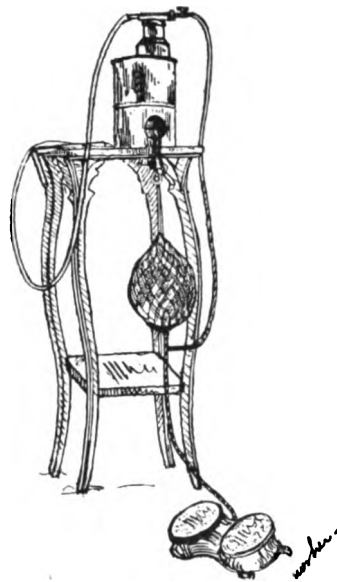


FIG. II. Ether apparatus.



FIG. III.—Supporting the child against the leg and knee.



FIG. IV.—Apparatus in use.





with for holding. In order to do this, the assistant puts his left leg in the chair back of the patient, grasps the patient's hair and holds the head against his knee.

If the operator uses a self-retaining gag the assistant has one hand free for the ether. Many men, however, prefer to have the gag so held that it can be let up from time to time in order to allow the throat to be cleared by swallowing. In septum operations, if a gag is kept in the mouth, the patient breathes through the mouth instead of the nose, and the possibility of a sudden inspiration through the nose, shooting clots back into the trachea, is guarded against.

If the ether apparatus is run by a hand bellows, an extra assistant is needed, but with a foot bellows this is not necessary. In all of the more extensive operations it is well to have the etherizer free to confine himself to the ether alone. The bellows can be replaced in hospitals by the compressed air tank. With ordinary care there is no danger from fire.

By using a double boiler the use of the alcohol lamp can be dispensed with. Boiling water is put in the outer compartment and will keep the water about the ether bottle in the inner compartment sufficiently warm for nearly an hour.

Abroad, and in many places outside of Boston, there is a great prejudice against the upright position. The reason given is that there is danger of collapse. All that I can say is, that I have not found anything to justify this opinion. I have knowledge of but one case which could be classed under this head. That the position had little, if anything, to do with it was shown by the condition repeating itself some days after the operation and while the patient was still in bed.

Within a year or two an account of some experiments on animals which have a bearing on this point appeared. Unfortunately I have not been able to re-examine this reference, but the point of the work was this: Rough manipulation in the pharynx or upper larynx was frequently followed by death. Further experiments went to show that the previous giving of atropine prevented this. The explanation of these results was that the stimulation of the pharyngeal plexus stopped the heart by its inhibitory action. Atropine seemed to prevent this. The freedom from any accident in Boston makes me feel that, though possible, and though probably explainable on this theory should it happen, this accident for all practical purposes can be disregarded. Those who give atropine as a routine measure before operating in order to prevent the formation of mucus, would seem, from what has just been said, to derive an additional advantage from its use.

**INFANT MORTALITY IN RUSSIA.**—The St. Petersburg correspondent of *The (London) Times* says alarming figures in regard to infant mortality are made public by the medical reports to local authorities. It appears that in many governments 40 and even 50% or more of the children die in their first year.—*Medical News*.

## NOTES ON X-LIGHT: RADIO-ACTIVE SUBSTANCES IN THERAPEUTICS.

BY WILLIAM ROLLINS, BOSTON.

DURING the year 1900 I made experiments with radio-active substances hoping to find a substitute for x-light. I found that some of the radiations retained their activity after passing through animal tissues as thick as the body of a guinea pig. I was so convinced of the value of radium that I placed about 500 mgm. in a sealed capsule to protect it from moisture, giving it to a physician with the request that it should be tried on lupus, a disease which at that time was interesting him. The capsule was disk shaped, with a front of aluminum, a back of comparatively nonradiable metal. I believe it to be important to test these substances in the treatment of lupus, superficial cancer and diseases of the skin in which x-light has been found useful; therefore, I mention that I have another capsule which I shall be glad to send to any Boston physician who will give the matter a fair trial. Radio-active substances can be used in sealed capsules held against the body by adhesive plaster, or they can be made to cover larger areas by mixing them with rubber or celluloid to form moisture-proof plasters. These plasters may be still further protected by being coated on the sides nearest the body by aluminum foil and on the opposite sides by lead foil. They could be kept in stock by the yard by druggists and given to patients by prescription, with proper directions as to the length of application. They could be worn at night. Their use would prevent the poor from making such frequent visits to a physician as are now required when x-light obtained from a vacuum tube is used. This is a matter of some importance, as the present treatment takes many sittings which require time and cost money.

## Medical Progress.

### REPORT OF PROGRESS IN ORTHOPEDIC SURGERY.

BY E. H. BRADFORD, M.D., AND E. G. BRACKETT, M.D., BOSTON.

(Concluded from No. 3, p. 69.)

#### PNEUMOCOCCUS ARTHRITIS PRIMARY IN THE KNEE JOINT.

DUDLEY ALLEN<sup>27</sup> reports 2 cases, 1 in a female 40 years of age, of fatal result in spite of drainage and incision. There were no pneumococci in other organs. The writer is unable to say how the affection could have gained access to the joint.

Cave<sup>28</sup> also reports a case and has collected 30 others in literature. The symptoms vary, according to the writer. There is pain and slight swelling, limited to a single joint, to intense inflammatory edema of the whole neighborhood of

<sup>27</sup> *Annals of Surgery*, p. 527.

<sup>28</sup> *The Lancet*, Jan. 12, 1901, p. 82.

the joint, with severe pain and redness, and an abnormal mobility from destruction of the ligaments, and grating of the bare surfaces of the bones. The fever is generally high, the prognosis is grave, both as to the danger to life and the restoration of the joint. Recovery is slow and the function of the joint, as a rule, is permanently impaired. A diagnosis can only be made on pathological examination of the fluid.

In most of the cases suppuration takes place and aseptic incision is necessary. In almost all cases pneumonia is present.

#### EXTRA SYNOVIAL PLASTIC OPERATIONS OF THE CAPSULE AND OTHER PLASTIC OPERATIONS OF THE KNEE.

Auler<sup>20</sup> has collected a number of cases of operation of the chronic luxation of the patella operated upon either by taking a fold in the capsule without opening the joint, or in addition the reimplanting of the ligamentum patellæ to the inner side of its normal position, stitching it to the periosteum. In a genu valgum the ligament and the entire side of the capsule is often weakened, and can be shortened on the inner side at the level of the insertion of the inner border of the quadriceps tendon. This operation is sometimes found of advantage in the correction of knock-knee by osteotomy.

Narrowing of the capsule is of advantage after chronic hydrops of the joint, in order to increase the compressing force of the quadriceps. Bardenheuer has performed this operation in 4 cases of chronic rheumatism and arthritis deformans.

#### SCOLIOTIC VERTEBRÆ IN A YOUNG PIG.

Schulthess<sup>20</sup> describes this specimen which was furnished from the spine of an 8-months-old pig; the deformity was accidentally discovered at the slaughter-house, the spinal column showing a well-marked deviation in the thoracic region towards the right. The specimen which was prepared demonstrated a scoliosis closely resembling that found in man. The scoliosis was a right convex dorsal scoliosis, with a slight torsion in the upper and lower portions of the dorsal vertebræ. The scoliosis was associated with torsion and side deviation of the individual vertebræ. The bodies of the vertebræ were, as a rule, broadened on the concave side and made thin on the convex side. The ribs on the convex side were sharply bent at the tuberculum. A careful description of the bone and deformity, with illustrations, is given.

#### TREATMENT OF SCOLIOSIS.

Schulthess<sup>21</sup> desires to emphasize the need of careful measurements and records in the treatment of this affection in order to enable the observer to determine the improvement or the reverse. He has been disappointed in the use of the skiagraph for this purpose. The treatment

which he recommends consists in the use of carefully applied and devised correcting movement apparatus, with gymnastics, and the use of corrective corsets in certain cases. Careful tables of cases treated in the last 5 years, with accurate measurements, prove the success of the method of treatment employed.

Deutchlander<sup>22</sup> is in favor of the application of plaster corsets in the correction of severe scoliosis, the plaster being applied over the shoulders and around the neck, while the patient is seated and subjected to strong traction. He concludes that the treatment is by no means unsatisfactory, although the method is tedious. The corset should be applied after an interval of several weeks. The method is supplemented by gymnastic treatment.

A critical examination of the static theory of the origin of scoliosis leads Zupping<sup>23</sup> to the conclusion that vertical pressure increases existing curves; that the loading of one side can cause a side curve, but it is uncertain that side or central loading of the trunk will cause torsion. It is improbable that the torsion is the primary, and the deformity of the thorax the secondary, result.

Hussey,<sup>24</sup> after a careful study of 134 cases treated by corsets at the clinic of Luning and Schulthess, concludes that this method is useless, for the reason that atrophy of the muscles of the back is caused, the digestive functions are interfered with, and, in his opinion, the treatment by corsets has an unfavorable influence upon torsion and increased deviation. It is unable to check the progress of scoliosis. He advises the use of a corset only in painful scoliosis and in well-marked cases accompanied by respiratory troubles. The corset used in the cases observed appears not to extend above the axillæ.

#### CARIES OF SPINE: AN ANALYSIS OF A THOUSAND CASES.

Waterman and Jaeger<sup>25</sup> studied 1,000 cases by a statistical method, for the purpose of comparison with data of other observers, and the results form a valuable contribution to this literature. The cases are divided into groups according to age, and these are then examined with reference to sex, locality, symptoms and complications, as well as the relation which this condition bears to the thoracic tuberculosis. The value of the article is augmented by comparison with the tables of Vulpis.

#### TRAUMATIC AFFECTIONS OF THE SPINE.

Aberst<sup>26</sup> claims that vertebral affections of a traumatic origin arise from a fracture by compression, which has caused secondary and rarefying osteitis. He has seen 20 cases of this sort, especially among young children, without having found a single or primitive traumatic spondylitis. As an early diagnosis of the lesion is very difficult, the patients are frequently allowed to be up

<sup>20</sup> Deutsch. Zeitschr. f. Chir., p. 540.

<sup>21</sup> Zeitschr. f. Orthop. Chir., 1901, ix, 1.

<sup>22</sup> Loc. cit., Bd. ix, H. 3, p. 280.

<sup>23</sup> Zeitschr. f. Orthop. Chir., 1901, ix, 1.

<sup>24</sup> Beitr. zur klin. Chir., Bd. xxix, H. 3.

<sup>25</sup> Zeitschr. f. Orthop. Chir., 1900, viii, 202.

<sup>26</sup> N. Y. Medical Journal, Nov. 9, 1901.

<sup>27</sup> Munch. med. Woch., 1900, p. 39.

too soon, in the course of 2 or 3 weeks, before the fracture has entirely consolidated, and this gives rise to a gibbosity. The term "traumatic spondylitis" is inexact. It would be better to use the term "traumatic kyphosis."

#### CONGENITAL DISLOCATION OF THE PATELLA.<sup>87</sup>

The writer describes 3 cases of congenital dislocation of both patellæ in father, son and daughter. In all 3 cases the dislocation was turned toward the outer side. In the father and 4-year-old daughter there was no loss of function, but in the 7-year-old son the disability suggested operation.

The operation consisted in separating the tuberosity of the tibia and fastening it farther to the inner side of the tibia near the internal condyle. The result was satisfactory. Bergman published a case of congenital dislocation of the patella to the outer side. The patella was particularly small.

#### HABITUAL DISLOCATION OF THE PATELLA.

Schanz<sup>88</sup> performed an operation in a case of habitual dislocation of the patella by suturing the patella at 6 points to the aponeurosis of the internal condyle. The sutures were removed at the end of 10 days and the patient was allowed to walk at the end of 6 weeks. The result was satisfactory. The operation recommended differs from that of previous surgeons in removing the suture and in simplifying methods of its insertion; also in the attention given to passive motion in the post-operative treatment.

Friedlander<sup>89</sup> reports 2 cases. He regards the cause of this an alteration in the shape of the ends of the bone and laxity of the capsule. The prognosis is unfavorable if the affection is not treated. Gymnastics, massage and mechanical appliances or operation are advised.

#### THE CONDITION OF THE KNEE JOINT IN LITTLE'S DISEASE.

Joachinsthal<sup>90</sup> calls attention to an anomaly in the position of the patella. It is found to stand higher than normal, through the lengthening of the ligamentum patellæ. The apex of the angle formed by the bent knee is not, as is normal, to be found at the internal condyle and upper portion of the patella, but on a point near the middle, giving the joint a sharp, pointed appearance.

#### RESULTS OF TENDON GRAFTING IN INFANTILE AND SPASTIC PARALYSIS.

Tubby<sup>91</sup> reports excellent results in a number of cases which have been treated by him. The cases are of calcaneo valgus, calcaneus and equino valgus.

In calcaneus he advises not to be content with inserting a tendon from the external or internal aspect alone, but to reinforce the tendo-achilles by

tendons taken from either side. He recommends tendon grafting in cases of spastic paralysis.

After the operation great persistence is needed in massage and passive movements. Out of 11 cases of tendon grafting for paralytic talipes, 6 have shown good results and 5 fair results. In no case was there failure. In the results of 4 operations on the forearm, that is, transplantation of the pronator radii teres, 3 were good and 1 was partial. Sinclair White also reports good results.

#### CONTRACTION IN THE KNEE JOINT.

Heusner<sup>92</sup> reports a number of cases of obstinate contraction in the knee joint which he has cured by transplanting the tendons of the hamstrings to the tendons of the quadriceps. The tendon and semitendinosus of the biceps are to be utilized. If one alone is used, there is a danger of slight varus or valgus position of the knee.

Bruns<sup>93</sup> also recommends 2 incisions at the side of each tendon, with transplantation of the hamstrings and immobilization for 3 weeks, after which the patient can walk. He reports 2 successful cases.

#### THE TREATMENT BY LUXATION OF THE TENDON OF THE PERONEUS.

Reering,<sup>94</sup> after observing a case which was developed from the mounting of a horse, considers the mechanism of this dislocation similar to what was described by Kraske and Schneider after experiments on cadavera, and concludes that the luxation follows the sudden change of the position of the supinated plantarflexed and adducted foot into an extended abducted position through the whole of the peroneus muscle. The tendon is to be returned and kept in place by adhesive plaster. A few days later a plaster bandage should be applied. This should be followed by massage.

#### PLASTIC INCISION OF THE TENDO-ACHILLES.

Bayer<sup>95</sup> has recommended the z-shaped division of the tendon in place of spontaneous tenotomy in paralytic spastic equinus, but he has given up the method on account of the scar which has been left. In its place he advises tenotomy of the tendo-achilles from the middle line, cutting one-half to one side and the other half to the other side, the different halves being cut at a different level and the middle line being incised, connecting the two side cuts.

#### GAIT IN HIP DISEASE.

Romniceana et Bolintineana<sup>96</sup> state that from a cinematograph certain facts have been demonstrated. The invalid drags the foot on the affected side and rarely lifts it from the ground, except at the moment when it passes the vertical line. The period of oscillation of the affected limb is much longer than on the well side, because the patient

<sup>87</sup> Zeitschr. f. Orthop. Chir., Bd. ix, H. 2., p. 218.

<sup>88</sup> Loc. cit., 1900, Bd. vii, H. 4, p. 231.

<sup>89</sup> Arch. f. klin. Chir., Bd. lxi, H. 2.

<sup>90</sup> Berl. klin. Woch., 1901, p. 8.

<sup>91</sup> British Medical Journal, p. 585.

<sup>92</sup> Deutsch. med. Woch., 1901, p. 22.

<sup>93</sup> Centrbl. f. Chir., 1901, p. 169.

<sup>94</sup> Loc. cit., 1901, H. 2.

<sup>95</sup> Loc. cit.

<sup>96</sup> Bukarest, 1900.

attempts to diminish the amount of time during which weight is turned upon the painful limb. As a result the duration of the whole step is less long than in a normal step. The patient, instead of attempting to maintain equilibrium, leans forward to the well side in order to diminish the influence of the weight of the body upon the affected limb, and for the same purpose he exercises balancing movements of the upper extremity which are thoroughly characteristic.

#### ABSENCE OF THE TIBIA IN A CHILD OF FIVE YEARS.

Grosse,<sup>47</sup> in a case of this sort, performed an operation by inserting the upper portion of the fibula in the intercondyloid fossa, after having shaped the head of the fibula so that it would be fitted to the new socket, but preserving the epiphysis with care. Consolidation took place in 6 weeks, and at the end of 2½ years a shortening which had been 6 cm. was not greater than 4 cm. and the fibula was evidently much thicker. The patient was able to walk without crutches, wearing an orthopedic shoe.

#### CONGENITAL DEFECTS OF THE FEMUR.

Reiner,<sup>48</sup> after an exhaustive article on the subject, describing the varieties of congenital deformity of the femur, with thorough literature on the subject, concludes in advocating, instead of operating upon the distorted femora, the use of some prothetic apparatus which would develop the limb. Amputation is not considered advisable in childhood.

#### ETIOLOGY OF CONGENITAL DISLOCATION OF THE HIP.

Friedlander,<sup>49</sup> after a thorough investigation of this subject, has come to the conclusion that the deformity is uterine. There are various anomalies in the position of the embryo due to abnormalities of the skull, spina bifida, and especially an unusual position of the liver; these cause an exaggerated lordosis of the spine. In with these may be found an excessive or rudimentary curve of the femoral neck. The reason why the deformity is more common in girls than boys is that the sexual difference in the fetus is marked as early as the fourth or fifth month, and the difference in the shape of the pelvis makes a change in the pressure of the embryos of the different sexes.

#### CONGENITAL DISLOCATION OF THE HIP.

Codivilla<sup>50</sup> concludes from 76 cases, operated upon by him, that in cases from 3 to 12 years of age, reposition without incision is possible. In 50% of the cases this reposition remained with a good result. In other cases a relaxation takes place, though in some of the cases there is an improvement, even under these circumstances. In these cases an operation by incision is of advantage and helps the retention. To prevent ankylo-

sis, he recommends the folding of an upper fold of the capsule before the head of the femur as it enters the acetabulum. He advises against draining the wound, and closes it immediately after operation.

Konte<sup>51</sup> reports 50 cases not yet published, from the clinic of Josserrand, where the bloodless method was used. Of these 16 were complete repositions, 12 single and 4 double. Twenty-four were transpositions; 13 single and 11 double. Four gave relapses; 2 are unknown.

Ghillini<sup>52</sup> thinks that if the head of the femur in congenital dislocations is pushed towards the thigh, it should, when replaced, be kept in a position of exaggerated abduction. If the head is below the femur it should be placed in adduction. If the head is pushed forward the thigh should be inverted, and if backwards the thigh should be rolled outwards. In 100 cases the writer has found good results with the adoption of these views.

#### AUTOPSY OF A CASE OF CONGENITAL DISLOCATION CORRECTED BY THE METHOD OF LORENZ.

Nove Josserrand<sup>53</sup> made an autopsy 14 months after the correction, death being due to diphtheria. The child was 3½ years of age, and presented all symptoms of congenital dislocation. The diagnosis of the deformity was confirmed before operation by an x-ray photograph. Reposition took place without difficulty, retentor apparatus was worn for a year, followed by a corset with pressure upon the trochanter. The result was excellent, both clinically and anatomically, as shown by an x-ray photograph. On post-mortem examination it was found that the muscles on the affected side showed slight atrophy, especially the adductors and pelvic trochanteric muscle. Evidence of the operation was found in scar tissue in the adductors. The bones were found normal and the pelvis symmetrical, but slight depression was found on the ileum representing the position of the head before the operation. Motion was normal. The head was slightly larger and there was an absence of the ligamentum teres. The acetabulum was slightly elliptical, and the cartilaginous layer was less developed and wanting on the backward side.

#### THE TREATMENT OF CONGENITAL DISLOCATION OF THE HIP IN AN ADULT OR AN ADOLESCENT.

Jaboulay<sup>54</sup> advises, after a certain age, against any attempt at reduction, but has operated upon a case 23 years of age by resecting the pubic bones through the whole thickness and through a length of 4 cm. The sacro-iliac articulations are then divided and the iliac bones are bent toward the symphysis pubis. Union by first intention followed in the three wounds, and the patient was allowed to get up on the thirteenth day. The gait improved from day to day and the femoral became vertical. The hips are less prominent

<sup>47</sup> Arch. f. klin. Chir., Bd. lxii.

<sup>48</sup> Zeitschr. f. Orthop. Chir., Bd. ix, H. 4, p. 544.

<sup>49</sup> Loc. cit., Bd. ix, H. 4, p. 515.

<sup>50</sup> Loc. cit., Bd. ix, H. 2, p. 123.

<sup>51</sup> Thesis of Lyons, 1901.

<sup>52</sup> Munich Medical Weekly, 1901, p. 14.

<sup>53</sup> Rev. Mens des Mal. de l'Enfance, November, 1900.

<sup>54</sup> Bull. Soc. Chir., Lyons, 1900, Bd. iii, H. 2, p. 57.

and the hollow back less. The procedure is reported by the author to be without danger and of great benefit to the patient.

#### RESTORATION OF THE FUNCTION OF ANKYLOSED JOINTS.

Chlumsey<sup>56</sup> gives the result of experiments with reference to determining procedures in ankylosed joints which fail to yield to the simple methods. The obstacle to the restoration of the function in these joints is due either to an atrophy of the soft parts, to a union fibrous or bony between the joint surfaces, or to a combination of the two. The path to the successful treatment is shown by the method of pseudarthrosis, namely, the interposition of the soft part between the bony surfaces. The application of this has been tried with smaller joints with success, but is not applicable to the larger joints, as, for instance, the knee.

In the experiments, small plates of celluloid, silver and other metal were inserted between the bony surfaces in the knee joints of animals. In these the ligaments were all divided, and the bones more or less resected. The fresh surface of the tibia was then completely curetted, and the plates inserted and held in place by silk sutures. The formation of cartilage and the rounding of the end of the bones were found to occur, and resemble the results obtained in former experiments. The author is of the impression that there is a greater diminution of the joint cavity than in previous experiments, but is not yet prepared to announce final results.

#### THE MECHANICS OF LATERAL CURVATURE APPLIED TO SEVERE CASES.

Lovett<sup>56</sup> considers this subject from experiments upon both the cadaver and living model, and has applied the results found to the methods of treatment. He considers, at first, that the conditions in flexible and fixed cases are not the same and require different treatment. Torsion and side bending of the spine always accompany each other. In the fixed cases, rotary or lateral pressure does not affect the correction in the curve itself, but tends to rotate this portion of the spine on the more flexible portions above or below.

Rotation without counter pressure in front tends to increase the lateral deviation, and lateral pressure alone may cause an increase of rotation. The corrective force applied to the curve is apt to displace the thorax in relation to the rest of the column rather than to change the curve itself.

He concludes that it is easier to twist the whole thorax than to change the curve itself, and this force must, therefore, be met by counter-pressure on the thorax in front, otherwise it will be dissipated through the spine, while a forcible reduction by side pressure alone may increase the rotation. Suspension has but little effect in the

fixed cases upon the curve itself. It is more likely to affect the compensatory curves.

The application of jackets in a prone position on the hammock with the legs hanging is recommended as a desirable position, on account of the extension of the lumbar spine.

In applying these principles to the treatment of fixed cases, two things may be attempted: To apply a rotation force antagonized by pressure in front, to affect the curve itself; or the curve may be twisted as a whole, or displaced sideways, improving the general outline of the trunk.

#### TREATMENT OF MUSCULAR AND JOINT SPRAINS.

Sneve<sup>57</sup> reports results of his experience with this class of accident among the railway employees, and is of value in showing what can be done with this class of injuries among the strong and healthy, and with whom time is of great importance.

The treatment is directed toward the protection of an injured joint surface, and a rapid stimulation and nutrition of the soft structures. The muscular structures should be allowed free activity on account of the action on the lymph vessels. The amount of discoloration is not an index of the amount of injury. Contused joint surfaces should be immobilized and motion administered at the same time to the muscles passively, and this treatment should begin as soon as possible after injury. Protection to the part may be afforded by firm bandage or the strapping, and later treatment of hot applications for the dilatation of the superficial vessels may likewise be resorted to.

#### CERVICAL RIBS.

Kammerer<sup>58</sup> reviews the rather extended literature of this subject. Supernumerary ribs are not always cervical; in fact, the lumbar are more numerous, but never give rise to symptoms. The cervical variety is important only as it occasions symptoms. The ribs usually articulate with the vertebra. The symptoms, being circulatory, in some instances result in complete loss of pulse and sometimes in aneurism of the subclavian, and in other cases the symptoms are sensory.

The reason of sudden development of symptoms from a condition dating since birth can frequently not be explained. Sometimes it follows trauma, or, after emaciation, it may be due to absorption of fat in this region, by which the vessels lose their support from a loss of fatty tissue. The vessels in these cases are always found passing over this supernumerary structure.

The operation consists either in the removal of the whole rib or of a portion sufficient to remove the pressure caused by the displacement of the vessels, and is either very easy or quite difficult. The parts are reached through an incision along the anterior edge of the trapezius, and when the deeper parts are exposed the plexus and vessels are easily isolated.

<sup>56</sup> *Centrbl. f. Chir.*, 1900, xxxvii, 921.

<sup>56</sup> *Boston Medical and Surgical Journal*, Oct. 31, 1901.

<sup>57</sup> *New York Medical Journal*, June 1, 1901.

<sup>58</sup> *Annals of Surgery*, November, 1891, p. 637.

## Reports of Societies.

### NEW YORK NEUROLOGICAL SOCIETY.

STATED meeting Dec. 3, 1901, JOSEPH COLLINS, M.D., president.

DR. M. ALLEN STARR presented a woman who had been brought to him by her family physician, Dr. Bush, on Nov. 1, 1900. She had been perfectly healthy before this illness, and there was absolutely no history of specific disease. On July 1, 1900, she had been exposed to a very intense heat, and suddenly after this she had had a general convulsion. She had been ill after this for 2 or 3 days, and had then recovered, but the convulsion had been repeated 2 weeks later, and she had had them at intervals of 2 weeks to a month up to the time of coming to him. During this period she had lost flesh and strength, and had suffered from dizziness and impairment of vision. In October, 1900, the left side of the body had become distinctly weaker. Her husband was quite positive that the convulsions were usually limited to, or were much greater on, the left side of the body. The attack began with numbness in the finger and thumb of the left hand; then a closure of the hand occurred, after which the numbness extended up the forearm and arm, and the forearm became flexed and the arm abducted. Lastly, there was a shaking. The numbness would extend up to the shoulder, and then she would lose consciousness. After that, the leg would become convulsed, and the left side of the face would twitch. On examination, he had found no strabismus or apparent paralysis of the face or tongue. The left hand was weaker than the right, as shown by the dynamometer. The left knee jerk was increased, and there was some numbness in the hand as compared with the other side. She had suffered a good deal from headache. When seen a month later, the attacks were more frequent, so that she was having as many as eight in a day, and the headaches were more severe. When seen again in January, the attacks still continued, but were not quite so severe, and she did not lose consciousness. She was losing about half a pound of flesh a week. The difference in the two hands by the dynamometer was represented by 40 and 60, as they had been at first. Operation had been repeatedly urged by him, but consent had not been obtained until March 19, 1901, when her condition had been much poorer, and there was a beginning of optic neuritis.

She had been sent to Dr. A. J. McCosh, at the Presbyterian Hospital. It was thought that the lesion was located in the middle third of the motor zone, in the posterior central convolution, and an incision was made in accordance with this view. The operation was done under chloroform, a horseshoe incision being used. The skull was sawn through and the brain exposed. On lifting up the flap of bone, it was evident that there was some thickening of the dura. The dura was re-

flected, but was nowhere found to be adherent. Posterior to the fissure of Rolando and occupying the middle third of the posterior central convolution, the brain surface was yellow, and was markedly destitute of blood vessels. It was evident that this discolored mass was a tumor lying upon the brain. It had a thin capsule, but was carefully separated from the brain tissue. In the interior, however, it was not limited by a capsule. On removal, the mass measured 1 inch anteroposteriorly and  $1\frac{1}{2}$  inches vertically, and was 1 inch thick at its thickest point. There was a smooth external surface, but it was nodular internally. On section it was hard and not at all vascular. The cavity in which the tumor had lain was lined by compressed convolutions, but at the bottom the tumor invaded the white matter. There was no hemorrhage from the pia, and the pulsation of the brain quickly returned. She made a rapid and uninterrupted recovery from the operation.

Immediately after the operation there had developed a hemiplegia of the left face, arm and leg. This had gradually passed off, and there was now nothing left of it except a slight weakness of the hand. She had been entirely free from the attacks since the operation, had been free from headache, and had gained about 20 pounds in weight. At the present time, there was an intention tremor and an athetoid movement in the left hand. On the left side tactile sensation, and temperature, pain and muscular sense were all impaired to about the same extent. She was not able to determine by the feeling the nature of many objects when grasped by the left hand—a condition that had not existed before the operation. The knee jerk had increased upon the left side. The optic neuritis had entirely disappeared. The hemiplegia he would ascribe to the tearing of the brain during the operation. The tumor proved to be a sarcoma.

#### INTENSE FLUSHING OF THE FACE.

DR. EDWARD D. FISHER presented a man of 22 who, from the age of 16, had had periodic attacks of intense flushing of the face, sometimes in the form of a distinct red band. It never extends farther down than the chest. He is dull and stupid at these times, although he has never lost consciousness or had a distinct epileptic attack. It was not connected with nervousness or emotions, and resembled erythromelalgia. Iodide and bromide of potassium were the remedies that had given the greatest relief. The man's habits were excellent, and he is largely in the open air, being a carpenter.

DR. W. M. LESZYNSKY said that he had seen 2 patients with a similar disturbance of the cervical sympathetic as a result of excessive coffee drinking.

DR. JOSEPH COLLINS suggested that the man be given half a dr. of fluid extract of cascara sagrada every night for 2 weeks, with no other treatment whatever. The affection was evidently a localized vasomotor paresis confined to the cephalic area which had been proven to be in



connection with disturbance of the lower intestine. He was not inclined to look upon this as a serious disorder, but rather as originally a toxemia, and secondarily a bad habit.

DR. FISHER said that he had had the patient under his observation for two years, and this explanation did not seem to him to meet the case.

DR. JOSEPH FRÄNKEL said that he had had a patient under observation for several weeks at one time, and DR. C. L. DANA, who had also seen the patient, had been of the opinion that it was a vasomotor paresis arising from intestinal toxemia. There were also some neurasthenic symptoms directed to the sexual sphere.

DR. FISHER said that he had treated the boy at first on the basis suggested by the last speaker, but further observation had led him to think this was a mistake.

#### TUMOR OF CEREBELLUM INVOLVING THE ABDUCENS NUCLEUS.

DR. M. G. SCHLAPP presented a man 21 years of age, who had come to him about 6 weeks ago. There was no tuberculosis in the family, and he had had no syphilis. About 2 years ago he had first noticed that at times he would become dizzy, and that this would be followed by headache and vomiting. Shortly after this he had fallen out of a wagon, and since then the left side had grown weaker. Examination of the eye showed choked disc, weakness of the left leg and an ataxic gait. The ataxia was most marked in the left leg; the knee jerks were absent; the plantar and abdominal reflexes were present; the pupils were equal and reacted to light; there were no sensory disturbances. A week ago he had developed a disturbance of the conjugate movement of the eyes, which had disappeared in 2 days. The convergent reaction was, however, all right. He had made a diagnosis of a tumor involving the anterior part of the left side of the cerebellum, and in some way affecting the abducens nucleus.

#### TUMOR OF POSTERIOR CENTRAL CONVOLUTION.

DR. SCHLAPP also presented a woman 41 years of age, a Bohemian cigarmaker. She had enjoyed good health up to 5 years ago. At that time she had fallen down stairs and had sustained some contusions, including one on the left side of the head. Subsequently the right arm and shoulder had become the seat of twitchings, and there were attacks of loss of speech. After 3 years they had extended over the shoulder, neck, to the face and tongue. At first these attacks had occurred once in 2 weeks, but recently there had been many in a day. Latterly she had also suffered from intense shooting pain in this limb. He had made a diagnosis of a tumor in the posterior central convolution extending back into the parietal lobe. There was astereognosis and impaired tactile and muscular sensibility on the affected side. Pain and temperature sense were not specially disturbed. Dr. Woolsey had operated upon this patient, and had found a yellowish and somewhat indurated area, about the size of

a dollar, in the posterior central convolution. A section of this tissue was exhibited under the microscope, and it showed that the mass removed was not a tumor. Since the operation the strength in the affected hand had improved. She had had four convulsions. The case was presented as having a possible bearing on the question of astereognosis. Apparently the anterior central convolution had not been involved in the growth. It was probable that this convolution was the one having to do with motion, whereas the posterior central convolution had to do chiefly with sensation. In astereognosis the pain and temperature sense are not usually involved, whereas tactile and deep muscular sense are involved. It was known that the two latter do not decussate in the spinal cord, but end in the columns of Goll and Burdach.

DR. LESZYNSKY remarked that if the conjugate deviation were permanent, it would serve to substantiate Dr. Schlapp's contention.

DR. B. ONUF said that he had seen a recent case exhibiting marked conjugate deviation together with a very decided ptosis on the left side, and on the right side a paresis of the abducens nerve. This deviation had come on after an apoplectic attack of hemiplegia. He did not think such a case could be explained by the involvement of the abducens nucleus; the lesion was evidently in the region of the third nucleus. It was possible that involvement of the posterior longitudinal fasciculus might explain the deviation. In his case the deviation was permanent. The affection of the right auditory nerve would confirm the theory that the abducens was affected.

#### MULTIPLE ENDOTHELIOMA OF THE DURA.

DR. HUNT showed this specimen derived from a woman 45 years of age, in the Montefiore Hospital. When 15 years old she had become suddenly deaf. Two years before admission she had begun to suffer from headaches, and these had persisted. There had been no vertigo. At times her legs would suddenly give way and she would fall. On admission, examination showed that there was a tendency to fall to the right; the right pupil was larger than the left; facial innervation on the right side was deficient; the tongue deviated to the left; the optic nerve showed choked disc, and weakness of the right upper and left lower extremity was very marked. The tendon reflexes were all exaggerated, but this was especially noticeable in the right arm and left leg. The right patellar reflex only was present. At the autopsy over 100 tumors were found on the dura, aggregated chiefly about the falx, but extending over the convexity on either side. Four of the tumors were larger than the others. At the base of the brain the dura mater was free, but there were two tumors, the size of a pigeon's egg, occupying the interval between the pons and the medulla, and causing a pressure atrophy of the middle peduncles on each side. These tumors were found to be endotheliomata, and the vessels showed considerable calcareous deposit. There was no evidence of malignancy.

## GLIOSARCOMA OF THE RIGHT FRONTAL LOBE.

DR. HUNT also showed this specimen, taken from a man 40 years of age, who had been brought to Bellevue Hospital because he had fallen in the street. According to friends, he had been acting very peculiarly for the past 4 months. He was moderately emaciated and the face was flushed. There was an incomplete left-sided hemiplegia with loss of skin and tendon reflexes on the affected side. He was stupid, but could be easily aroused to answer questions. He showed a strong disposition to turn everything into ridicule. There was no conjugate deviation of the eyes, and no aphasia. The pulse was not slow. At the autopsy the meninges were found to be normal, but the convolutions over the right frontal lobe were flattened and very edematous. On making a section into this lobe, a large tumor had been found growing in the white substance. It had grown outward and downward into the frontal cortex. The tumor proved to be a gliosarcoma.

## BRAIN TUMORS.

DR. M. ALLEN STARR opened the discussion on this subject, reporting the following case: The patient was a boy of 11 years, who had come to him, after treatment for malaria by other physicians, because of the persistence of morning headaches. These headaches had begun in June, and had gradually increased in severity up to Oct. 8, when Dr. Starr had first seen him. The boy was then dull, spoke very slowly, and would drop asleep if left alone for a very few minutes. The left external rectus was a little weak; there was nystagmus and double optic neuritis. He had suffered from vertigo, and had vomited twice unexpectedly. His gait was quite ataxic, and the left limbs assumed involuntarily abnormal positions. There was no inability to smile, either voluntarily or reflexly. The ataxia of the right leg was very marked, and was associated with a peculiar involuntary position of the hand and arm. There was apparently no anesthesia on the left side, and no hemianopsia. A diagnosis of tumor of the optic thalamus had been made at once, because of these forced positions. Dr. Starr said that he had seen such a case in Meynert's clinic in Vienna. Meynert considered these automatic movements and forced positions as a voluntary correction of a delusional state. The question of operation was not entertained. As the boy's father had died of general paresis the boy was put on mixed treatment, and this had been pushed vigorously for a number of weeks. During this time the boy had grown steadily worse, and had had several collapses accompanied by a pulse of 40 and rapid breathing. He had been last seen on Oct. 26, and had been able then to understand what was said, but could not talk at all. He was totally paralyzed on the right side, and was able to turn the head only to the middle line. There was apparently no disturbance of sensation on the paralyzed side. The limbs were no longer held in stiff positions, but were relaxed, and the

tendon reflexes were abolished. There was no complaint of headache. The pulse was 80, the respirations regular, and there was no fever. He died quietly on the following day.

The autopsy revealed the presence of a tumor occupying the optic thalamus on the left side, which was enormously enlarged. It was completely infiltrated by a sarcoma. The tumor had apparently compressed the internal capsule, and had infiltrated all of the tissue of the tegmentum about the corpora quadrigemina. The ventricles were enormously distended with fluid.

Dr. Starr said that this case had led him to look over his private records of brain tumors for the past 6 years. He had seen in this time 25 cases of brain tumor. Fifteen of the patients were males, and 10 females. All ages appeared to be about equally liable. The average duration of the disease had been 11 months, which was much shorter than generally stated. The tumors had been distinctly located in 15 cases, and it had been possible to operate in 4 cases. No diagnosis of tumor whatever had been possible in 2 cases. One of these was a patient whom he had been asked to see because it was purposed to commit him to an asylum. There was a history of chronic alcoholism, some headache and morning vomiting; great mental irritability and imperfect memory. At times he was very violent with his family, though perfectly quiet in the presence of others. In the previous month, on two occasions, he had had sudden attacks of coma lasting about half an hour. Two days after this examination the patient had suddenly died, and the autopsy had revealed a large tumor occupying the left superior parietal convolution. The other case had been seen in consultation with Dr. Biggs. Several physicians had agreed upon the diagnosis of bulbar paralysis. There was no optic neuritis and no headaches. At the autopsy a small tumor had been found occupying the entire medullary oblongata. No localization had been possible in 8 out of his 25 cases. In 19 an operation had been absolutely impossible, either because of the absence of a diagnosis or because the tumor was inaccessible. The operation had been done in 6 cases, and in two the operation had been successful in that the tumor had been found, but 1 of these patients had died. Therefore, there had only been one patient out of 25 who had recovered. In 1 case, astereognosis had been considered the most important symptom of localization, and consequently the parietal region had been freely exposed, but no tumor had been found. In 1 case in which the tumor had been in the cerebellum, Dr. McCosh had operated. To relieve the distention of the ventricles they were tapped and drained. Sixty ounces of fluid a day had been obtained from the lateral ventricles. The patient had finally died, and an infiltrating tumor of the cerebellum had been found. In another case of cerebellar tumor, the occipital bone had appeared at the operation worm eaten, and had been the seat of such a profuse hemorrhage that further exploration had been considered inadvisable. In a

summary of the cases of brain tumor made by him in 1896 it had been shown that about 7 % of brain tumors are operable, and that of the cases operated upon about one-third recover from the operation. Those earlier statistics had been made up from a large number of cases by different operators, and had not been from his own records alone.

DR. A. J. McCOSH said that the case shown by Dr. Starr was an unusually favorable one for operation because of the accuracy of the diagnosis, the accessibility of the growth and its freedom from vascularity. Most of the brain tumors that he had seen had usually caused considerable hemorrhage and severe shock. The statistics of these 25 cases seemed to him to come more nearly to the truth than the older ones giving a more favorable percentage.

DR. LESZYNSKY said he wished to report the further progress of the case reported by him to the American Neurological Association. The patient had been suffering from symptoms pointing to a lesion in the motor area for nearly 2 years before coming under observation. The tumor had been found at operation to be an endothelioma of the motor cortex. The operation had been done 2½ years ago, and although the patient had relapsed more or less into a hemiplegic state, he had practically recovered. The localization in this case had been exceedingly accurate. No untoward result had followed the operation, and no additional damage had been done to the brain by the operation. The patient was still engaged as an accountant.

DR. ONUF reported a case in which the localization had been extremely satisfactory. The history had begun in July, 1901, with slight jerkings of the shoulder and hip, followed by weakness of the left leg and arm. About 2 months after the onset of the symptoms, the speaker had seen him, and although suspecting brain tumor, he had placed the man on vigorous antisyphilitic treatment for 2 weeks. A peculiar feature had been that there was chiefly an affection of the abductors, flexors and extensors of the hip, while the extensors of the knee had been less affected, and the muscles of the feet hardly at all. The jerkings had been purely of the Jacksonian type. The case was remarkable because of the absence of headache and local tenderness. The diagnosis had been made, chiefly on the predominance of the affection of the central part of the extremities, of a tumor situated between the shoulder and hip centres, probably quite near the cortex. Immediate operation had been urged, but it had not been done for 3 weeks. The tumor had been found directly beneath the trephine opening. There was much softening, so that a sound could be introduced for 2 inches without encountering resistance. The microscope showed the tumor to be a gliosarcoma. It had been impossible to remove all of the tumor.

DR. SCHLAPP said that in his specimen there was an arteriosclerosis with an increase of gliar cells and the deposition of calcareous material.

He had not made the diagnosis of tumor involving the abducens nucleus entirely on the conjugate deviation, but the fact that the left side of the face had been weaker than the right had seemed to confirm that view.

DR. JOSEPH FRÄNKEL said that he had seen a few days ago a boy of about 18, who claimed to have been well until struck in the back of the head by a swinging door. After this he had developed paralysis of the right third nerve, followed soon afterward by hemiplegia. He had been operated upon, and the base of the brain searched for a basal cyst, but none found. He had then been admitted to the Montefiore Hospital. There was paralysis of the left upper extremity and an enormous contracture, with less marked paralysis of the left lower extremity and some slight optic atrophy. Subsequently inquiry had elicited the fact that his companions had noticed long before the accident that the boy showed a peculiar tendency to laughter. Dr. Fränkel recalled a case which had exhibited similar automatic movements to those reported in Dr. Starr's case. He had come to the conclusion that the tonus of the muscles was the most important factor in connection with the production of reflexes. He would like to know how absence of the reflexes could be explained in Dr. Starr's case.

DR. JOSEPH COLLINS exhibited a photograph of an enormous tumor of the frontal convolution, which had been diagnosticated by an eminent neurologist and by himself as a tumor of the pons. His experience had gone to show that brain tumors are far more inoperable than was generally believed. Statistics had seemed to show that about 7 to 10% were operable, but when one came to sift these it was found that about 3 or 4% were operable. In his own experience but one case had been successfully operated upon, although the operation had been many times essayed. Dr. Bramwell of Edinburgh had contended that his own very large experience had utterly failed to confirm the statistics given by others regarding the operability of brain tumors.

DR. STARR closed the discussion. He did not feel like subscribing to the statement of the previous speaker concerning the almost universal inoperability of brain tumors, for 2 of his own series of 25 had been distinctly localizable and operable. Accidental hemorrhage had caused death in 1 of these cases, and the other ought to live the usual length of life with only slight disability. It was true a great many cases of brain tumor successfully operated upon were reported while many unsuccessful ones were not. Dr. Bramwell's statements were not borne out by his experience, for Dr. Bramwell had published 61 cases of brain tumor that had occurred in his own practice, and of this number there had been at least 7 that could have been successfully operated upon. Discouraging as the statistics were, it was right to operate upon every case of brain tumor having a distinctly localized and accessible tumor. He believed if in the case presented by him at this meeting the operation had been consented to

when first advised, the patient would have recovered without any disability. The conjugate deviation referred to by Dr. Schlapp might occur not only from a lesion of the sixth nerve nucleus, but from anything which interferes with the posterior longitudinal fasciculus between the sixth and third nerve nucleus.

### Recent Literature.

*Diseases of the Heart.* By EDWARD HENRY COLBECK, M.D., F.R.C.P., D.P.H., Physician to Out-Patients at the City of London Hospital for Diseases of the Chest. London: Methuen & Co. 1901.

Written by an admiring pupil of Sir William Broadbent, this treatise reflects the value of his teaching and bears a graceful dedication to him. It was the author's aim "to keep the book within reasonable limits," and to this end "controversial matter has to a large extent been avoided," thus permitting "much greater precision in the exposition of the subject," at the cost of excluding "much new and interesting work." This aim he has carried out successfully, and the result is a well-printed book of only 336 pages, covering the ground, for the most part, in an adequate and satisfying manner.

Anatomical details are sufficiently well done, diagrammatic representation put in where needed, and the sphygmogram and cardiogram not given undue importance.

The chapter on congenital affections is brief, but quite explicit, losing something in value from the lack of clearness with which the development of the heart and great vessels is given. The prognostic outlook in the various forms is expressly stated; the most common cause of death in those cases reaching middle life is said to be pulmonary tuberculosis.

A praiseworthy attempt is made to put all of the so-called hemic murmurs on an organic basis, and, while it is unfortunate that in this and later discussions the antiquated term "fluid vein" should be perpetuated, the reasoning is clear and the various theories that have been advanced in explanation of functional murmurs are given fair hearing. No mention, however, is made of the effect of change of position on the intensity of such murmurs, and it is positively stated that they are always systolic in time.

Attention is called to the frequency with which murmurs arise at the mitral orifice as a result of muscular incompetence. In the brief description of cardiopulmonary murmurs no warning is given of the comparative frequency with which they occur in healthy individuals. According to the author, in the diagnosis of acute endocarditis the first modification to be looked for is the prolongation of the first sound, ascribed to a swollen condition of the mitral segments, while the murmur so often developing as a sequence may be due

either to extending inflammation of the valve or to failing muscle.

Attention is called to the great frequency of pericarditis as a complication (occurring in one-third of the cases) and the importance as well as difficulty of establishing a diagnosis is emphasized. It is stated on the authority of Sir Samuel Wilks that severe cardiac symptoms in young people, without evidence of valvular disease, suggest the presence of pericardial adhesions.

The influence of chorea in the production of endocarditis is attributed to its rheumatic ancestry.

The chapters on chronic endocarditis are excellent, treating carefully in details the different forms of valvular defect, and giving full description of the immediate and remote effects in such a way as to be perfectly intelligible to the student.

Exception may be fairly taken to describing hypertrophy and dilatation as diseases of the myocardium, and the description itself of these compensatory changes is rather prolix.

The short chapter on angina pectoris is one of the best in the book, and the theories of etiology, with the weight of evidence, are well stated for both types, the true and the false.

*Water and Water Supplies.* By JOHN C. THRESH, D.Sc. (Lond.), M.D. (Victoria), D.P.H. (Cambridge), Honorary Diplomat in Public Health, Royal College of Physicians and Surgeons, Ireland; Medical Officer of Health to the Essex County Council; Lecturer on Public Health, London Hospital Medical College, etc. Third edition, revised and enlarged. Pp. 527. Philadelphia: P. Blakiston's Son & Co. 1901.

This valuable handbook, now in its third edition, has been enlarged by the addition of chapters relating to the protection of underground and of surface waters. The first seven chapters relate to the characteristics and composition of the different classes of water used as public supplies. Other chapters follow upon the effect of impure water upon health, the interpretation of water analysis, the self-purification of rivers, the softening of hard water, etc.

The author quotes freely from the accumulated experience of the Massachusetts Board of Health, as published in its series of annual reports.

He advocates the following distinct lines of defense for the protection of public supplies: (1) The utmost possible control of the watershed or collecting area; (2) very ample storage; (3) sand filtration.

He also outlines a course which has already been adopted in Massachusetts with good effect, in the statute giving power to the State Board of Health to make rules and regulations for the protection of water supplies.

This volume will be found very valuable as a work of reference for sanitary engineers, physicians, chemists, health officers, and all others who may be interested in the subject of water supplies. The subject is one of great practical importance, and should receive the attention of others than specialists.

THE BOSTON  
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THE BRITISH REPORT UPON THE USE OF  
FOOD PRESERVATIVES AND COLORING  
MATTERS.<sup>1</sup>

THE increasing length of time and distance necessitated in the transportation of perishable articles of food, when compared with earlier periods of time, has created a demand for special means of preservation in addition to the more crude and common methods, such as the use of sugar, salt, saltpetre, vinegar, alcohol and certain processes of smoking.

Within the past few years new forms of preservatives have come into quite general use for this purpose. These are mostly chemical substances having greater or less antiseptic power, and capable either of preventing or of delaying the process of fermentation. These articles are chiefly boric or boracic acid, and the borates, salicylic acid, sulphites, formaldehyde, benzoic acid and certain fluorides. The last two are not so generally used as those first named.

There is evidence that these articles are used quite freely in the preservation of many kinds of meat, fish and other food products, and, in some instances, by irresponsible parties who are entirely ignorant as to the proper limits of quantity to be used, and their possible injurious action. Several samples of a cheap and fraudulent preparation of preserved fruit were recently purchased in Boston, bearing a label which stated that "this package (containing less than one-half pound) contains one-fourth ounce of salicylic acid." This amount is fully forty times as great as is necessary to preserve the quantity in question. These samples were worthless imitations of the article which they represented, and were highly colored with an aniline dye.

<sup>1</sup> Report of the Departmental Committee appointed to inquire into the use of preservatives and coloring matters. Presented to both Houses of Parliament by command of His Majesty, London, 1901.

The use of artificial coloring matters has also increased very decidedly in the preparation of articles of food, and in the majority of instances the evident intent of such use is to conceal fraud, and give to a cheap and comparatively worthless article the appearance of a genuine product. If the use of coloring matters as an artificial addition to food were to be prohibited altogether it is quite probable that at least one-half of all adulterations would disappear.

Tropical wars, and wars carried on in countries distant from the base of supply, like the Spanish, and Philippine and South African wars, have brought this question still more prominently to the front; and while the "embalmed beef" controversy may become a matter of history, both politically and otherwise, the fact of the liberal use of preservatives remains, and the importance either of prohibition or of establishing a legal limit in the use of preservatives, is constantly becoming more evident.

Great Britain has become so largely dependent upon other countries for the food supply of her increasing millions, as to bring into special prominence the use of preservatives in such articles as are imported from other countries as well as those which are produced in her own territory, and consequently a committee was appointed by the Local Government Board, consisting of Sir Herbert E. Maxwell, Professor T. E. Thorpe, and Drs. Bulstrode and Tunnicliffe. This committee was directed to "inquire into the use of preservatives and coloring matters in the preservation and coloring of food," and to report:

(1) Whether the use of such materials or any of them, for the preservation and coloring of food, in certain quantities, is injurious to health, and, if so, in what proportions does their use become injurious.

(2) To what extent, and in what amounts, are they so used at the present time.

This committee has since reported in a document of nearly 500 pages, more than one-half of which consists of the minutes of evidence of 78 witnesses who have been examined during the two years since the committee was appointed. The report also contains 36 appendices containing valuable information upon the subject of preservatives and coloring matters, together with the results of several experiments which had been made by Dr. Tunnicliffe and others.

In the course of the investigation, 4,251 samples of food were examined, of which 1,659, or 39%, were found to be treated with preservatives. Of this number 1,247 contained boron preservatives, 320 had salicylic acid, 20 formalin and 143 sulphites. The highest percentages, so far as the number containing preservatives is con-

cerned, were found in cream, butter, margarine, bacon, ham, sausages, potted meats, pork pies, lime juice, cordials and fruit syrups. One witness stated that 50% of the dairymen in London use preservatives, the amount of borax being from 1 part in 10,000 to 1 part in 1,000, and that salicylic acid was used in jam in the proportion of one-half ounce of the acid to 1 cwt. of the jam.

The committee calls attention to the objection to the use of preservatives in milk, that they may possibly be relied on to protect those engaged in such traffic against the immediate results of neglect of scrupulous cleanliness. "Under the influence of such preservatives milk may be exposed without sensible injury to conditions which otherwise would render it unsalable. It may remain sweet to the taste and smell, and yet have incorporated disease-germs of various kinds, whereof the activity may be suspended for a time by the action of the preservative, but may be resumed before the milk is digested."

With reference to wine the committee says: "We are of opinion that wine which cannot be made or kept without the use of preservatives had better not be offered for sale."

The evidence in regard to coloring matters in food showed that such use is extensive and widespread. In recent years the coal-tar dyes appear to have supplanted many of the colors formerly in use. Among the other colors in common use were annatto, turmeric and copper. Three ounces of sulphuric acid were added to a barrel of pickled cabbage to intensify its red color.

With reference to the use of sulphate of copper as an addition to canned peas and other vegetables the committee says:

It is highly undesirable that what is admittedly a poisonous substance should be used, even to the smallest extent, in connection with such food as may be consumed in considerable quantity. The public have got into their heads that vegetables ought to be green, and green they insist upon having them. Direct proof that vegetables containing copper are injurious to the consumer is, from the very nature of the case, difficult to obtain, and we must admit that we have not succeeded in obtaining it. There is evidence pointing to the conclusion that copper, when added to the vegetables, forms a compound which is not easily soluble in the human economy. There is, however, evidence of a contrary character, and it is not clear to us that the whole of the copper added becomes, or remains, insoluble under all conditions. Be this as it may, recent events have so incontestably demonstrated the serious and widespread mischief which may result from the consumption of food and drink, other than sweetmeats, containing even minimum quantities of poisonous metallic substances, that we are strongly of opinion that such poisonous substances should be vigorously excluded.

The final recommendations of the committee are as follows, Dr. Tunnicliffe objecting to Recommen-

dation 6, but advising restrictions as to the quantity of copper to be allowed:

(1) That the use of formaldehyde or formalin, or preparations thereof, in food or drinks be absolutely prohibited, and that salicylic acid be not used in a greater proportion than one grain per pint in liquid food, and one grain per pound in solid food. Its presence in all cases to be declared.

(2) That the use of any preservative or coloring matter whatever in milk offered for sale in the United Kingdom be constituted an offence under the Sale of Food and Drug Acts.

(3) That the only preservative which it shall be lawful to use in cream be boric acid or mixtures of boric acid and borax, and in amount not exceeding .25%, expressed as boric acid, the amount of such preservative to be notified upon the vessel by a label.

(4) That the only preservative to be used in butter and margarine be boric acid or mixtures of boric acid and borax, to be used in proportions not exceeding .5%, expressed as boric acid.

(5) That in the case of all dietetic preparations intended for the use of invalids or infants chemical preservatives of all kinds be prohibited.

(6) That the use of copper salts in the so-called greening of preserved foods be prohibited.

(7) That means be provided, either by the establishment of a separate court of reference, or by the imposition of more direct obligation on the Local Government Board, to exercise supervision over the use of preservatives and coloring matters in foods, and to prepare schedules of such as may be considered inimical to the public health.

#### REPORT ON THE NEW YORK MILK SUPPLY.

THE Rockefeller Institute for Medical Research, which came into existence last spring through a gift of \$200,000 from John D. Rockefeller, and now has nineteen men of scientific attainments in New York, Boston, Philadelphia, and in Europe, engaged in various investigations, has just issued, as the first result of its labors, a report on the milk supply of New York. In formulating the general plan for this investigation, and in supervising the general lines which were carried out, the institute secured the co-operation of Dr. Wm. H. Park, and the bacteriological part of the work was done at the laboratory of the Health Department. It need only be said that the results obtained confirmed in every particular those previously reached by the Milk Commission of the Medical Society of the County of New York. In regard to the relation of milk to the summer mortality of infants, however, the report is of special interest. During the latter part of June three groups of infants living in different sections of the city, and fed entirely upon cow's milk, were selected for observation. In each section a portion of the infants were left upon the grocery milk which they were already using, while for the remainder special milk was furnished. More than two-thirds of the children

were closely followed during the months of July and August. A certain amount of illness, chiefly of a diarrheal character, was observed in nearly all the infants during the hot weather. There were only two deaths, however, one from pneumonia and one from diarrhea, among the children who were getting either the highest grade of bottled milk, or what might be termed good, wholesome milk, and comparatively little serious illness occurred among them, while most of them gained regularly in weight. The children who received the grocery milk did much worse in similar surroundings. Samples taken from most of the shops contained before heating from 4,000,000 to 800,000,000 bacteria to each teaspoonful. The bad effects of this milk were shown not only by a much larger amount of serious illness and many deaths, but also by the general aspect of all the children observed. In the general solution of the milk problem in large cities some help may come through legislation. The greatest improvements, however, are not to be brought about by compulsion of the dealers, but by educating them to the point of voluntarily doing better work. Great improvements in transportation are also possible, and here the railroads should be made to feel their responsibility to the public. Milk certification, as instituted and practised by the County Society's Commission, seems to be a solution of some of the difficulties met with in connection with the problem.

#### MEDICAL NOTES.

**JOURNAL OF OBSTETRICS AND GYNECOLOGY OF THE BRITISH EMPIRE.**—This is the title of a new journal, the publication of which has been begun under excellent editorial management in London. It is proposed to make the *Journal* an impartial and complete record of British obstetrical and gynecological practice, and an exponent of contemporary thought and achievement in these branches of medicine and surgery throughout the world.

**SANITARIUM FOR TUBERCULOSIS IN COLORADO SPRINGS.**—It is stated that William J. Palmer has announced his intention of giving 100 acres of land and \$50,000 to establish a semiphilanthropic sanitarium in Colorado Springs for consumptives. The institution is ultimately to cost \$250,000, the remainder of the money to be raised by subscription.

**JEWISH HOME FOR TUBERCULOSIS.**—It is reported that Baroness Edmond de Rothschild of Paris has given \$250,000 for the establishment of a home for diseases of the lungs in the Taunus Mountains in Germany as a memorial to her father.

**TREATMENT OF DIPHTHERIA.**—A learned medical contemporary, in its last issue, devotes a note to "The Treatment of Diphtheria, with Clinical Reports."

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Jan. 22, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 55, scarlatina 33, measles 120, typhoid fever 16, smallpox 43.

**BOSTON MORTALITY STATISTICS.**—The number of deaths reported to the Board of Health for the week ending Jan. 18 was 225, as against 229 the corresponding week last year, showing a decrease of 4 deaths, and making the death-rate for the week 20.4. The number of cases and deaths from infectious diseases was as follows: Diphtheria, 55 cases, 5 deaths; scarlatina, 33 cases, 1 death; typhoid fever, 7 cases, 2 deaths; measles, 72 cases, 2 deaths; tuberculosis, 27 cases, 16 deaths; smallpox, 36 cases, 3 deaths. The deaths from pneumonia were 29; whooping cough, 2; heart disease, 25; bronchitis, 10; marasmus, 2. There were 11 deaths from violent causes. The number of children who died under 1 year was 40, under 5 years, 60; persons more than 60 years, 60; deaths in public institutions, 62.

**REAPPOINTMENT OF DR. S. H. DURGIN.**—It is 30 years since Dr. Samuel H. Durgin was originally appointed on Boston's Board of Health, and meanwhile he has remained at its head and has put our health department at the head of the municipal health organizations of the country: There have been few city officials to whom Boston owes a greater debt of gratitude for intelligent and efficient service than it owes to Dr. Durgin, and his reappointment by Mayor Collins is a deserved recognition of this fact.—*Boston Herald.*

**LEAD POISONING IN MILTON, MASS.**—In connection with the recent cases of lead poisoning in Milton, the Board of Health has issued a statement to the effect that a careful examination of all suspected water is being made. It is furthermore stated that nearly all the cases of poisoning resulted from the use of water which ran through new lead pipes. No new cases have been reported for five weeks.

#### NEW YORK.

**INTERDICTED TRANSFER OF THE DANGEROUSLY ILL.**—Commissioner Folks of the Charities Department has issued an order to the effect that no patient in any hospital in the department, whose condition is such as to lead to the belief that a fatal result must be expected within three days, shall be discharged or transferred to any other hospital, unless such patient is violent and there



are no facilities for restraint there. In case a patient, received by any hospital in the department by transfer from some other hospital or institution within or without the department, shall die within three days after admission, a statement of the case shall be reported immediately by the head of the institution to the commissioner. This order is designed to put an end to the custom, so long in practice among the great hospitals of the city, of transferring dying patients to Bellevue Hospital in order to keep their death-rates as low as possible. Just as it was being given out, an ambulance from one of these institutions brought to Bellevue a patient suffering from Bright's disease, who died on the stretcher while being carried into the reception ward.

**THE NORWEGIAN DEACONESSES' HOME.**—The Norwegian Lutheran Deaconesses' Home and Hospital of Brooklyn has just received, through Mr. F. G. Bourne, a gift of \$64,000. In 1887 the late Alfred Corning Clark, who died in 1896, placed this amount in Mr. Bourne's hands, with the request that the sum of \$3,840 (or 6% of the principal) be annually donated to the institution. It was expressly stipulated, however, that the donor's name should be withheld until such time as he (Mr. Bourne) should decide to hand over the principal to the trustees of the hospital as a permanent trust fund, to be known as the Skougaard-Severini Memorial. The fund is named in honor of Skougaard-Severini, who died in 1885, who had been much interested in the Norwegian Hospital and given largely to its support.

**VERDICT SUSTAINS AN EXPERT'S CHARGES.**—In the New York Supreme Court, Prof. Rudolph Witthaus, the chemical and toxicological expert in the Molinoux trial, has just been awarded a verdict of \$6,639.65 in a suit brought by him against the city to recover that amount for his services in making an analysis of the stomach of Henry Barnett, whose death was made a prominent feature of the people's evidence at the trial. He contended that he undertook the work at the request of the district attorney and that it occupied 366 hours. His charge was \$15 an hour, with \$250 for consultations and \$500 for incidentals. The jury's verdict also included \$450 for interest on the amount sued for.

**MEDICAL ASSOCIATION OF GREATER CITY OF NEW YORK.**—At the annual meeting of the Medical Association of the Greater City of New York, held Jan. 16, Dr. Andrew H. Smith was elected president. The report of the statistical secretary showed that during the year 136 members had been elected, and that the total membership is now 522. A special committee was appointed to co-operate with the Committee on Legislation of the Medical Society of the State of New York in

opposing the bill which has been introduced in the Legislature, the object of which is to give legal standing to osteopaths.

**SCARLET FEVER.**—Four children suffering from scarlet fever have been transferred from the large Hebrew Orphan Asylum at 138th Street and Amsterdam Avenue to the Willard Parker Hospital, and the 700 inmates of the institution have been quarantined. More than 200 of the children attended a public school in the vicinity, but as yet no cases have been reported among the other pupils of the school.

**MEASLES.**—Within a week 400 cases of measles have been reported to the Board of Health from what was formerly the village of Flushing, Long Island, but is now a part of the Borough of Queens. While the disease is so widely prevalent, however, it is said to be for the most part of a mild type.

### Miscellany.

#### PRIVILEGED MEDICAL COMMUNICATIONS.

**DRS. G. G. WHITE and W. A. MILLER** of Elkader, Ia., contribute<sup>1</sup> to the list of cases illustrating the grotesque working of the statute recently enacted in that State in imitation of the New York law, which it was supposed might indirectly furnish certain protection to medical men.

It appears that a suit was entered to recover a bill for medical services rendered to a defendant who refused payment on the ground that the bill was ambiguous and the charge excessive. At the trial the defendant established as his defense that the services were of a confidential character, and that in accordance with the statute (Section 4,608, Code of Iowa) plaintiff had no right to testify as to the nature of the malady unless the defendant waived the right, which he declined to do.

The physicians being thus estopped from proving their bill by showing the nature and value of their services, were advised by their counsel to withdraw the suit, and the bill was subsequently settled by compromise.

#### OPERATION FOR PERFORATION IN TYPHOID FEVER WITH RECOVERY.

The following successful operation for typhoid perforation has recently been done by Dr. R. T. Davis of Benry, West Virginia, reported in *American Medicine*, Jan. 18, 1902. The patient, a coal miner's wife, 17 years old, suffered a perforation in the fourth week of her illness. The operation was done six hours later, upon the kitchen table, and recovery was practically un-

<sup>1</sup> Philadelphia Medical Journal, Dec. 14, 1901.

complicated. It is of interest that this operation was performed by a general practitioner, under most unfavorable conditions.

### Correspondence.

#### BOARDS OF HEALTH AND THE MANUFACTURE OF VACCINE VIRUS AND ANTITOXINS.

NEW YORK, Jan. 8, 1902.

MR. EDITOR: The editorial on "The Production of Vaccine Lymph" in the issue of the *Journal* of Jan. 2, was an instructive and useful article. But one contention therein I fail to understand, and to it I feel bound to take exception, and that is the plea for the making of their own preparations by boards of health.

The deaths that recently occurred at St. Louis from the use of impure antitoxin have naturally invoked a storm of indignation regarding the grossly reckless methods which have been shown to prevail in the manufacture of prophylactic agents by political bureaus, and I am not a little surprised to find that your *Journal* should have the peculiar distinction of being the only reputable medical organ, so far as I can discover, that prefers trusting the preparation of such articles to these bodies rather than to reliable pharmaceutical houses.

Is there, I would like to ask, a board of health anywhere that has the same facilities for making vaccine virus and antitoxin as are possessed by our large manufacturing houses? In St. Louis the antitoxin horses were kept at the poorhouse farm, and any old hack seemed to be considered good enough for the purpose. The task of filling the vials was left to "a very careful colored janitor." The bottles were not labeled so as to be distinguished from one another according to dates. No tests were made for the want of a guinea pig. In New York City, I am informed, the horses from which the Health Department derives its antitoxin are boarded out in a veterinary hospital, where they are kept in a cellar with surroundings and companions that many authorities have pronounced decidedly unsatisfactory. In Washington, a piteous wail has gone up from Dr. Salmon because of the frightfully overcrowded state of the stockyard where the different animals of the Agricultural Department are kept. Reading it one is forced to the conclusion that it must be a perfect Noah's ark or Andersonville prison.

No firm of private manufacturers could afford to have said about their stables, or their process of manufacture, one tithe of what has been said over and over again, sometimes by officials of the departments themselves, about those of boards of health and the Department of Agriculture. Why, it has even been admitted that the New York Board of Health sells inferior antitoxin to other cities at reduced rates.

It has always seemed to me that the proper function of boards of health was to test and watch the circumstances attending the use of vaccine virus, antitoxins and drugs. This they cannot do effectively so long as they go into competition with the regular drug trade. I have the highest appreciation of the experimental work done by my friend, Dr. Walter Wyman, at the laboratories of the Marine Hospital Service. I have likewise reason to believe that good research work is being done by some of the officials of the Board of Health here. What I would like to know is why they should be taken away from this useful and presumably congenial work, in order to enter on an unfair competition with the regular manufacturers of prophylactic agents and drugs, handicapped by the want of proper appliances, the want of proper accommodation for their horses, calves, etc., and the want, above everything, of skilled helpers. I am not sure that all boards could even rely upon the assistance of "a very careful janitor."

When we trust large pharmaceutical houses to prepare for us aconite, digitalis, strophanthus, ergot and

every other imaginable kind of valuable but dangerous medicine, there is surely no reason why we should go to amateurs under the control of political machines when we want such preparations as vaccine virus and antitoxin.

Very truly yours,

A. M. PHELPS, M.D.

[State or municipal control of vaccine production must necessarily depend for its efficiency upon the character of the persons charged with the duty of carrying on the work, and upon the sufficiency of the public funds appropriated for the purpose. The failure of two or three corrupt city governments in this direction should not prevent an honest effort on the part of any state or city to carry on a work of this character.]

As an example of successful work, the production of antitoxin by the State Board of Health of Massachusetts may be cited. For nearly seven years this board has furnished nearly all the diphtheria antitoxin which has been used in the State, and so far as we can learn, this practice has been entirely satisfactory. More lives have undoubtedly been saved than there would have been if the families using this product had been obliged to purchase it in open market. There is no reason why the same rule should not apply to the production of vaccine lymph for use in the State.

On the other hand, the State Board of Health, several years ago, made an examination of all the brands of antitoxin offered for sale in the State, by private manufacturers, with the result of finding a wide divergence in quality, several of them being decidedly inferior and in one instance practically worthless.

The reference to the Agricultural Department at Washington has no bearing upon the matter in hand, since that department is not in any way a producer of vaccine lymph for general use.—Ed.]

#### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 11, 1902.

CITIES.	Estimated population.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Diarrheal diseases.	
New York . . .	3,665,352	1,476	496	21.88	19.31	3.31	1.08	2.91	
Chicago . . .	1,852,828	—	—	—	—	—	—	—	
Philadelphia . .	1,349,624	481	118	21.18	16.04	4.16	1.66	6.24	
St. Louis . . .	603,717	—	—	—	—	—	—	—	
Baltimore . . .	525,330	205	51	14.10	16.59	.97	.49	.97	
Cleveland . . .	411,826	—	—	—	—	—	—	—	
Buffalo . . .	378,742	—	—	—	—	—	—	—	
Pittsburg . . .	341,401	150	43	26.00	17.38	4.00	6.00	2.00	
Cincinnati . . .	332,082	—	—	—	—	—	—	—	
Milwaukee . . .	304,975	—	—	—	—	—	—	—	
Washington . .	289,537	—	—	—	—	—	—	—	
Providence . . .	185,870	57	18	15.79	14.03	1.75	—	1.75	
Boston . . .	588,736	203	55	26.60	16.75	3.45	.98	1.48	
Worcester . . .	127,337	27	8	—	22.22	—	—	—	
Fall River . . .	111,872	16	4	31.25	—	12.50	—	6.25	
Lowell . . .	99,574	40	20	20.00	36.00	4.00	—	—	
Cambridge . . .	96,334	19	7	26.30	5.25	5.25	—	—	
Lynn . . .	71,144	—	—	—	—	—	—	—	
Lawrence . . .	67,275	16	8	26.00	18.75	—	—	6.25	
Springfield . .	66,864	18	5	27.77	11.11	5.55	—	—	
Somerville . . .	65,882	17	8	35.28	17.65	—	—	—	
New Bedford . .	65,574	17	6	11.76	29.40	—	5.88	—	
Holyoke . . .	48,065	15	5	33.33	13.33	20.00	—	—	
Brockton . . .	43,298	4	—	25.00	—	25.00	—	—	
Haverhill . . .	40,392	8	2	—	12.50	—	—	—	
Salem . . .	36,567	6	—	—	—	—	—	—	
Newton . . .	36,336	8	1	25.00	—	12.50	—	—	
Malden . . .	35,390	13	3	30.80	7.70	—	7.70	—	
Chelsea . . .	35,264	13	3	30.90	—	7.70	7.70	—	
Fitchburg . . .	33,848	5	2	40.00	20.00	20.00	—	—	
Taunton . . .	32,759	9	1	44.44	22.22	11.11	—	—	
Everett . . .	27,114	10	5	—	30.00	—	—	—	
North Adams . .	26,583	6	—	16.67	33.33	—	—	—	
Gloucester . . .	26,121	4	1	—	—	—	—	—	
Quincy . . .	25,307	7	2	22.22	33.33	—	11.11	11.11	
Waltham . . .	24,612	6	—	16.67	16.67	—	—	—	
Pittsfield . . .	22,311	7	—	—	—	—	—	—	
Brookline . . .	21,679	4	1	—	25.00	—	—	—	
Chicopee . . .	20,390	4	—	25.00	—	—	—	—	
Medford . . .	20,014	5	1	—	40.00	—	—	—	
Newburyport . .	14,478	—	—	—	—	—	—	—	
Melrose . . .	13,384	3	—	33.33	—	—	—	—	

Deaths reported 2,906; under five years of age, 879; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 624, acute lung diseases 517, consumption 285, scarlet fever 34, erysipelas 10, typhoid fever 41, whooping cough 13, cerebrospinal meningitis 8, smallpox 26, measles 37, diarrheal diseases 58.


From whooping cough, New York 7, Philadelphia 3, Baltimore 1, Boston 1, Lowell 1. From cerebrospinal meningitis, New York 3, Baltimore 1, Pittsburg 1, Boston, Somerville and Taunton 1 each. From scarlet fever, New York 26, Philadelphia 3, Baltimore 1, Pittsburg 2, Boston 1, Lawrence 1. From measles, New York 28, Pittsburg 6, Boston 2, Malden 1. From erysipelas, New York 2, Philadelphia 2, Baltimore 1, Providence 1, Boston 2, Lowell 1, Springfield 1. From smallpox, New York 3, Philadelphia 15, Boston 6, Cambridge 1, Somerville 1.

In the thirty-three greater towns of England and Wales, with an estimated population of 11,463,026, for the week ending Dec. 28, the death-rate was 21.1. Deaths reported 4,628; acute diseases of the respiratory organs (London) 425, whooping cough 84, diphtheria 71, measles 198, smallpox 27, scarlet fever 45.

The death-rate ranged from 14.3 in Derby to 29.3 in Manchester; Birkenhead 18.3, Birmingham 23.5, Blackburn 21.6, Bolton 19.2, Bradford 18.1, Brighton 18.6, Bristol 19.3, Burnley 26.3, Cardiff 20.2, Croydon 21.7, Halifax 17.4, Hull 18.8, Leeds 21.8, Leicester 21.8, Liverpool 22.9, London 20.6, Newcastle-on-Tyne 19.6, Norwich 17.2, Plymouth 18.4, Portsmouth 18.7, Preston 22.6, Salford 24.2, Sheffield 20.2, Swansea 19.3, West Ham 19.6, Wolverhampton 18.8.

#### METEOROLOGICAL RECORD

For the week ending Jan. 11, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S...5	30.34	20	28	11	42	76	59	W	W	14	10	C.	C.	
M...6	30.28	28	32	24	75	84	80	W	S	8	5	F.	C.	
T...7	30.15	26	29	22	88	94	91	N	N	9	15	O.	N.	.33
W...8	30.10	24	29	19	92	88	90	N	N	10	16	O.	O.	.06
T...9	30.06	29	35	23	87	78	82	N	W	8	4	C.	C.	
F...10	29.81	29	32	26	88	84	86	S	W	2	10	O.	C.	.02
S...11	29.52	35	39	31	86	95	90	S	W	4	6	O.	N.	T.
	30.04		32	22			83							.40

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
☞ Mean for week.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 18, 1902.

J. H. PAYNE, assistant surgeon. Detached from the "Isle de Cuba," and ordered home.

I. W. KITE, surgeon. Ordered to the Norfolk Navy Yard.

H. T. PERCY, surgeon. Detached from the Norfolk Navy Yard and ordered to the Navy Yard, League Island, for duty with the Naval Recruiting Rendezvous, Philadelphia.

W. F. ARNOLD, surgeon. Detached from the "New Orleans" and ordered to Guam.

J. T. KENNEDY, assistant surgeon. Detached from the "Brooklyn" and ordered to the "Helena."

J. W. BACKUS, assistant surgeon. Detached from the "Brooklyn" and ordered to the "Princeton."

R. C. HOLCOMB, assistant surgeon. Detached from the "Helena" and ordered to the "Manila."

R. W. PLUMMER, assistant surgeon. Detached from the "Princeton" and ordered to the "New Orleans."

B. R. WARD, passed assistant surgeon. Detached from the Boston Yard and ordered to the "Constellation."

W. C. BRAISTED, passed assistant surgeon. Detached from recruiting duty and ordered to the Naval Hospital, New York.

J. C. PRYOR, passed assistant surgeon. Detached from the Naval Hospital, New York, and ordered to the Naval Hospital, Newport, R. I.

#### OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 9, 1902.

IRWIN, FAIRFAX, surgeon. Bureau telegram of Dec. 27, 1901, granting Surgeon Irwin leave of absence for 7 days, amended so that said leave shall be for 5 days. Jan. 7, 1902.

CARTER, H. R., surgeon. Leave of absence for 10 days granted Surgeon Carter by Bureau letter of Dec. 26, 1901, revoked. Jan. 7, 1902.

KALLOCH, P. C., surgeon. To proceed to Portland, Me., and assume charge of the quarantine service at that port. Jan. 7, 1902.

KINYOUN, J. J., surgeon. Six days' leave of absence from Jan. 6, 1902, under paragraph 179 of the regulations.

MCCONNELL, E. F., acting assistant surgeon. Granted leave of absence for 30 days from Dec. 24. Jan. 8, 1902.

MACEO, J. N., acting assistant surgeon. Granted leave of absence for 30 days from Dec. 17. Jan. 8, 1902.

RIDEOUT, C. F., acting assistant surgeon. Granted leave of absence for 10 days from Jan. 2. Jan. 7, 1902.

#### APPOINTMENT.

DR. H. D. ARNOLD has been appointed Assistant Visiting Physician at the Boston City Hospital.

#### BOOKS AND PAMPHLETS RECEIVED.

The Present Status of the Carcinoma Question. By N. Senn, M.D., C.M., Ph.D., LL.D., Chicago. Reprint. 1901.

Outlines of Physiology. By Edward Groves Jones, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

Alcoholism, a Study in Heredity. By G. Archdall Reid, M.B., C.M., F.R.S.E. New York: William Wood & Co. 1902.

Rough Notes on Remedies. By William Murray, M.D., F.R.C.P. (Lond.). Fourth edition. Philadelphia: P. Blakiston's Son & Co. 1901.

Mosquito Brigades and how to Organize Them. By Ronald Ross, F.R.C.S., D.P.H., F.R.S. New York: Longmans, Green & Co. 1902.

A Retrospect of Surgery During the Past Century, being the Hunterian Oration of the Hunterian Society, 1901. By John Poland, F.R.C.S. London: Smith, Elder & Co. 1901.

The Pocket Gray or Anatomist's Vade-Mecum. By the late Edward Cotterell, F.R.C.S. Fifth edition, revised and edited by C. H. Fagge, M.B., M.S. (Lond.), F.R.C.S. New York: William Wood & Co. 1901.

Report of the Trustees of the Rhode Island Hospital. Presented to the corporation at its thirty-eighth annual meeting, Nov. 13, 1901. Providence: E. L. Freeman & Sons, Printers to the State. 1901.

Die neue Heilanstalt für Lungenkranke zu Schömburg, O.-A. Neuenburg nach der vollendeten Vergrößerung von Dr. med. G. Schroeder, dirig. Arzt. Illustrated. Leipzig: Johann Ambrosius Barth. 1901.

Directions for Class Work in Practical Physiology. Elementary Physiology of Muscle and Nerve and of the Vascular and Nervous Systems. By E. A. Schäfer, LL.D., F.R.S. Illustrated. New York, London and Bombay: Longmans, Green & Co. 1901.

On the Cure of the Morphia Habit without Suffering (Physiological Demorphinization) with a Note on the Physiological Method of Relieving the Craving for Drink. By Oscar Jennings, M.D. (Paris), M.R.C.S. (Eng.). Second edition, revised and enlarged. Illustrated. New York: William Wood & Co. 1901.

The Practical Medicine Series of Year Books, comprising ten volumes on the year's progress in Medicine and Surgery. Issued monthly, under the general editorial charge of Gustavus P. Head, M.D. Vol. I. General Medicine, edited by Frank Billings, M.S., M.D., with the collaboration of S. C. Stanton, M.D. October, 1901. Illustrated. Chicago: The Year Book Publishers.

The Practical Medicine Series of Year Books, comprising ten volumes on the year's progress in Medicine and Surgery. Issued monthly, under the general editorial charge of Gustavus P. Head, M.D. Vol. II. General Surgery. Edited by John B. Murphy, M.D. November, 1901. Chicago: The Year Book Publishers.

## Address.

ON THE VALUE TO THE PHYSICIAN OF MODERN METHODS OF DIAGNOSIS.<sup>1</sup>

BY HENRY L. ELSNER, M.D., SYRACUSE, N. Y.,

*President of the Medical Society of the State of New York.*

On this occasion I wish once more to express to you my thorough appreciation of the great honor which my election to the presidency of the Medical Society of the State of New York implied, and to thank you heartily for this proud distinction.

The development of medical science has been so rapid that to those who have been in practice 20 or even 15 years, who have not kept pace with the advances and the scientific movement, the language of the medicine of today is almost unintelligible. Indeed, medicine has been metamorphosed from an art into a science, to the everlasting credit of an unselfish profession and to the benefit of mankind.

Rational medicine requires for its successful practice a scientific fundament. It is not long since our methods of investigation were crude and faulty; instruments of precision were wanting, and the many refinements of diagnosis which we now possess were either undiscovered or the few in use were to be found only in the larger universities.

It gradually became evident, however, that to complete the education of the physician it was necessary to establish the laboratory (that true workshop of the physician), where he might study the conditions which exist in health, learn to appreciate the changes wrought by disease, gather lessons from the thorough study of physiological chemistry, and record many facts concerning the modification of perverted functions by the application of remedies. Without these object lessons many of the astounding advances of modern medicine could not have been made. By the aid of these, medicine has made greater progress during the past three decades than had previously been made in as many centuries.

The scientist must of necessity be a revolutionist. All things he must prove for himself. Richet has truly said: "By experiment and by science, medicine is compelled to march forward!" This is as true today as it was in the time of Harvey, and should prompt us to encourage in all fields of medicine, wherever permissible, original painstaking experiment and the conscientious application of positive conclusions to the recognition and treatment of disease.

Unalterable and earnest in the belief that modern methods of diagnosis have proven themselves of the greatest advantage to the physician in the study of disease, and with a conviction deeply grounded, much against my will, that only a minority of the medical profession has adopted these refinements, by the use of which medicine in its

science becomes more and more exact, I have concluded on this occasion to address you "On the Value to the Physician of Modern Methods of Diagnosis."

The profession, as organized in our society, has always represented a progressive element in medicine; has demonstrated its willingness to enlarge and enrich its field of usefulness and influence; has striven to disseminate knowledge far beyond the limits of our own State; and it is because of this encouraging past, and the promising present which cements the past and the future, that I bring this subject to your notice, that our influence may be exerted in behalf of methods in diagnosis which rest on a scientific foundation, and which prove, when impartially reviewed, to be of inestimable value to the suffering.

We are not to rest content with the uncertain methods of our forefathers, which seemed to them, as they seem to many today, to unearth the entire truth, but with Lessing we must proclaim: "Not the bare truth which everybody possesses, or thinks he possesses, but the earnest endeavor which he has made to understand the whole truth—to get at the foundation of it—makes the worth of a man. For it is not through its possession, but rather through the search for the truth, that his powers are enlarged, which alone make for his growth toward perfection. Possession makes him quiet, indolent, proud." Ours is a profession which can ill afford to be satisfied with possession which makes it innocuous and proud. Ours is the task of blasting in the quarries of the unknown, where are hidden innumerable precious truths awaiting development. Thus may our art "gain the reach and certitude of sway over disease which we all yearn for it to possess."

Sir Michael Foster has recently said: "The phenomena of disease, being phenomena of living beings, present themselves in most, if not in all cases, as problems,—as mixed problems of physics, chemistry and biology,—to be grappled with by the doctor as they are grappled with by the physicist, the chemist and the biologist." To this quotation I add the words of our own philosopher and pathologist, Welsh, recently given to the profession at the Virchow dinner: "General pathology must call to its service not only morbid anatomy, but also experiment and clinical medicine; nor is practical medicine to be founded upon pathological anatomy and general pathology alone, important as they are to the physician in many ways. Clinical medicine, as well as every other department of medicine, must be investigated by itself, deriving, as should every science, all the aid it can from allied sciences."

Our appreciation of clinical diagnosis by means of microscopic and chemical methods is well demonstrated by the hearty welcome with which the original work of von Jaksch and later the volume of Simon's, both on clinical diagnosis based on newer methods, were received by the progressive internists. We were eager for more exact knowledge—for science to aid us in our art. The

<sup>1</sup> President's address delivered at the ninety-sixth annual meeting of the Medical Society of the State of New York, held in Albany Jan. 28, 29 and 30, 1902.

statement by Simon, that "Diagnosis is now the password in medical science," needs to be realized by many who continue satisfied with the uncertain methods of the past. The value of the application of the knowledge of physiological chemistry to the recognition of disease is splendidly illustrated by the certainty with which many diseases of the stomach and intestines are thereby recognized. Here I may be permitted to quote from a former address:

"With the discovery of free hydrochloric acid in the gastric mucus, by Prout in 1824, and the demonstration of pepsin by Schwann in 1836, the first data for an ultimate and more thorough understanding of the physiological and chemical functions of the stomach were given. These discoveries, with those of Reaumur and Spallanzani, formed the foundation upon which ultimate gastric pathology was to rest, and upon which a structure has been erected to which modern medicine points with just pride."

"The way to pathology is through physiology," says Ewald; "and the more we deal with this subject, the firmer is the truth of that statement impressed upon our minds. It is not the study of the peptonizing function alone which claims our attention, but it is the proper understanding of the entire work which is performed in this human laboratory, including a large part of the alimentary canal, and a thorough appreciation of the relation which each function bears to the others, that makes a rational anatomical diagnosis and indications for treatment possible and in many cases positive."

When Kussmaul, in 1869, first used the stomach pump and tube in the treatment of disease, Liebermeister correctly prophesied that this manœuvre would probably mark an epoch in gastric pathology and therapy. When Leube, in 1871, first recommended the stomach tube for purposes of diagnosis, he cleared the way for the ready diagnosis of stomach disease. Without the method evolved from Leube's original innovation, gastric diagnosis would soon fall and the treatment of stomach disease would once more become as unscientific as of yore.

The diagnostic value of the absence or diminution of free HCl in the stomach secretion, associated more particularly with pyloric cancer and ultimate dilatation, was first systematically investigated by R. von den Velden at Kussmaul's clinic in Strassburg. Golding Bird called attention to this fact in 1842, and it seems strange that this information was ignored by the profession for diagnostic purposes during so many years.

I found in my investigations of gastric cancer, reported in 1893, in 120 tests, free HCl absent in 92.7% and present (as a rule feebly) in 7.3%; and from a larger number of cases since studied, material change in these figures is not justified.

The diagnosis of cancer of the stomach from the absence or presence of free HCl *alone* ought never to be made, but associated with other symptoms leaning toward malignancy, we may assume

with considerable certainty that the demonstration of the presence of HCl argues against the existence of cancer. The cases, according to Ewald, "In which there is a positive reaction to the carefully applied tests are so rare, that they have very little bearing on the question." Since the introduction of these chemical tests for the recognition of diseases of the stomach, we have learned much which is of value relative to blood changes in these and other diseases. Thus, in some cases of latent or progressive cancer of the stomach, atrophy of the gastric follicles and pernicious anemia or other diseases associated with cachexia, stomach symptoms, and blood changes, the combined results of gastric tests with the blood examinations, *repeatedly made*, give facts which we must possess to clear the horizon and justify positive diagnosis.

Henry's observation showing that the reduction of red blood corpuscles in cancer of the stomach does not keep pace with the cachexia, while in pernicious anemia the cachexia does not keep pace with the reduction of red blood corpuscles, has been corroborated many times and is of great diagnostic value.

For the surgeon the knowledge gained by our new methods in stomach disease is strongly confirmatory. With a growing experience we are justified in entertaining for the future a well-founded hope of recognizing malignant disease of the stomach early, when as the surgeon's help-mates we shall save or prolong many lives in comparative comfort.

By these methods of diagnosis the dietetics and therapeutics of gastro-intestinal diseases have been placed upon a more solid and scientific basis.

The satisfaction experienced by the physician in outlining a diet which he knows will positively find a suitable reception and ultimate assimilation, must be sufficient recompense for the time occupied in studying the individual case.

Time will not permit the rehearsal of profitable experiences in this field. The recognition by our positive methods of qualitative and quantitative changes in the secretory function of the stomach has ended the suffering of many chronic invalids. The recognition of hyperacidity and hypersecretion has relieved many unfortunate sufferers from uncontrollable pain, waning strength and wasting muscle, with rebellious stomach symptoms. Scientific diagnosis in these cases, followed by rational treatment, yields brilliant results. No physician can do justice to himself or to his charge, who is unable, when the case demands it, to apply the simple methods which without great labor or loss of time make clear to him the working ability of the stomach in its secretory, motor and absorptive parts.

No one who has worked in the broad field of medicine, unless finally biased by narrow and special practice, contends that in all diseases of the stomach we need the test meal and the knowledge gained by its chemical examination, for the recognition of disease. We shall always meet a large number of cases, however, with uncertain symptoms, with strong suspicions of disturbed gas-

tric function; cases with features of malignancy, though without positive physical signs; cases in which the question of the benign or the malignant nature of the underlying process needs prompt recognition, in which we shall be able to add a strong link by the correct interpretation of data gained by the methods founded upon our knowledge of physiological chemistry.

In this connection, I must call your attention to the great value of inflation of the stomach with air or carbonic acid gas. In office practice we often gain knowledge of the relative size and position of the stomach, its relation to the neighboring organs, of its walls, as well as the resistance of these, by the administration of a Seidlitz powder, each part separately, to allow the escape of gas in the stomach to distend it. More satisfactory, in cases where this manœuvre fails, is the inflation with air through the stomach tube. The failure to inflate the stomach by these means, with associated symptoms of malignancy, the absence of tumor and free HCl, would lead to a suspicion of infiltrating disease of the stomach wall. In some cases adhesion of the surrounding organs has thus been recognized, while in a case of ulcerating cancer it was found that the adherent transverse colon was readily distended with the tube in the stomach, because of communication which existed between these viscera as the result of ulcerative changes.

The distention of the large intestine with air is frequently of great value in the localization of abdominal diseases; particularly useful in the recognition of renal growths in which the distended gut is found anterior to the growth. These methods are too rarely used and will not be discarded when fairly tested.

The precipitation by centrifugal force of cellular elements from the stomach contents with microscopic and bacteriologic examinations will often prove of great therapeutic and diagnostic value.

In connection with the diagnosis of syphilitic diseases, a fact which has been too often overlooked and which is rarely mentioned, is the tolerance of the iodides in specific cases of ulcer and gastritis and the ready relief experienced. Under ordinary circumstances the symptoms of these patients are almost immediately aggravated.

The application of centrifugal force to clinical medicine is of recent date. Steinbeck of Stockholm, a medical student, first described the use of the centrifuge for the precipitation of sediments from urine, sputum and other pathological fluids. Litten, at the Congress of Internal Medicine in 1891, made a strong argument in favor of its use; von Jaksch described the positive advantage of the combination of the centrifuge and Biedert's method in cases where he was unable to find bacilli after patient search. Freeborn of New York, in 1891, demonstrated a home-made machine capable of 950 revolutions per minute. Gerster and Sondern followed with contributions on this subject, and in 1894 Elsner and Hawley, after a considerable experience with the instru-

ment, dilated on the "Clinical Value of the Centrifuge."

Experience with the centrifuge has proven it to be of inestimable value. It is one of the few aids to diagnosis which has been generally adopted, and today there is practically no laboratory or hospital in which it is not found.

The time gained by centrifugalizing urine is of great advantage where an unaltered urine is desired (fermentation not having taken place); the early precipitate shows epithelial casts and other structures before changes in shape, size and contour occur, and these without bacterial contamination. By the use of the centrifuge insoluble and suspended elements are precipitated.

Blood may be precipitated when present in such small proportion that no other method would show it. It is invaluable to the insurance examiner in aiding to discover the underlying condition in cases of so-called transitory, cyclic or puzzling permanent albuminuria. It is our most reliable aid in detecting early primary genito-urinary tuberculosis. It precipitates small quantities of albumin with picric acid and makes possible the immediate application of Esbach's test, thus saving 24 hours.

The bacteriological examination of serous exudates and other pathological fluids is expedited by its use, as is also the examination of sputum for tubercle bacilli where they are present in small numbers.

The writer found that in 21% of urine analyses the centrifuge yielded results which led to greater accuracy in diagnosis than could have been otherwise obtained.

In doubtful cases of renal calculus the methods of Kelly, including the distention of the kidney and its pelvis with water, after his improved manœuvre, give information which cannot be obtained without exploratory operation. The added evidence furnished by the x-ray examination and the skiagram will often furnish proof which justifies accurate and scientific diagnoses, though the clinical history may be meagre and unsatisfactory. These and similar methods, with painstaking bedside study, may arouse suspicions which must finally lead to positive conclusions.

The birth of a new science, hematology, founded upon accurately interpreted data, has added great pleasure and material profit to the study of many conditions formerly puzzling in their differentiation and unsatisfactory in their treatment. No diagnostic methods in medicine give more conclusive evidence or offer more uncontrovertible pictures than are revealed by those which we today include in our examinations of the blood. When I hold that these methods have not only been profitable, but have given the diagnostician genuine pleasure, I speak without exaggeration.

It is not the object of the evenly balanced physician to replace the knowledge gained at the bedside by laboratory findings, or to limit diagnosis by considering only facts made positive by microscopic examination and staining of the blood, but to add the exact knowledge which was uni-



attainable before the advent of hematology. Let him who has never relied upon blood examination for assistance in diagnosis, work but a short time in this field and he will unfold a chapter to which he will revert for information, upon which he will learn to place great reliance as he becomes more and more conversant and expert in technique.

Blood examination means much more than would appear on the surface to those who are unacquainted with hematological methods. From a narrow conception of the true significance of the anemias, we have broadened the field until we hold, without fear of successful contradiction, that the positive diagnosis of the simplest form cannot be made without the aid of data obtainable by blood examination.

Clinically the picture of a grave anemia, non-malignant, is often identical with that of pernicious anemia. Pernicious anemia may, in some of its stages, simulate exactly in subjective symptoms, and in many of its objective features, a true leukemia, while Hodgkin's disease may present symptoms not unlike malignant disease, lymphatic or mixed leukemia. The missing link in the differential diagnosis can only be furnished by laboratory examination of the blood.

Without the quantitative test for hemoglobin we would often fail in our differentiation of the anemias, while our treatment would continue to be irrational.

Differential blood counts and staining methods give data which justify the positive differentiation of the various forms of anemia known as leukemia. Thus we have learned to recognize the pathognomonic lymphocyte of lymphatic leukemia, and the myelocyte of the myelogenous or splenomyelogenous variety of the disease.

Who shall be able to compute for the profession the gain which has accrued from our ability to diagnose malaria from the presence in the blood of its protozoon? Our ready method of demonstrating the organism of malaria has made positive the nature of many most difficult and troublesome conditions. Add to this the readiness with which, after the method of Sittman, we recognize bacterial contamination of the blood, and you have included methods by which medicine has become more exact and satisfactory. In many epidemics we meet continued fevers without characteristic symptoms of typhoid, which can only be diagnosticated by the systematic use of the Widal agglutination test. The percentage of failures is relatively small, while the positive information, so much needed in doubtful cases, is often, though not always, obtained. Absence of leucocytosis, or a diminution below the normal of leucocytes with fever, with the absence of other objective features, has often justified the diagnosis of typhoid before a positive Widal test was obtainable. The presence of the leucocytosis with chills and fever, or with continued fever with or without local symptoms, has often led to conclusions which have been life-saving in their effect. Sudden and persistent leucocytosis in typhoid

fever, and in other conditions not usually associated with polymorphonuclear leucocytic increase, points to complications, the nature of which may be surmised with great certainty when the result of the blood examination is considered with the associated subjective and objective symptoms.

The revelations of a leucocyte count in a case recently seen, where irregular fever and chills followed dysentery, without more than a slight tenderness in the right hypochondrium, with slightly enlarged liver, furnished the information which made pus accumulation probable and justified exploration. An abscess of the liver was found.

Puzzling cases in which tuberculous diseases require differentiation are often cleared by a count of leucocytes. This method of differentiation is one which we will often use, and unless we have mixed infection with tuberculosis, the absence of leucocytosis may be considered an important factor in diagnosis.

Thus in tubercular peritonitis the leucocyte count is not materially increased. Leucocytosis with brain symptoms argues in favor of meningitis, nontubercular.

Much has been written recently on the condition of the blood in surgical disease, particularly in appendicitis. In connection with this disease we must not fail to give an existing leucocytosis the prominence which it deserves. To depend upon the results of the blood examination, without giving to other symptoms in a suspected case of appendicitis their proper import, would lead to unpardonable error.

The diagnosis of trichina spiralis may, and has been, corroborated in doubtful cases by the presence of eosinophilia. Eosinophilic increase may become an aid in the recognition of scarlet fever where other data are wanting or meagre.

The detection of indician with or without leucocytoses gives information of value in occasional doubtful intestinal and abdominal diseases.

It has been said that the time occupied in making blood examinations is out of all proportion to the knowledge acquired,—an unjust and untrue charge. To gain exact information is our aim at any expense of time, but fortunately a thorough blood examination can be completed in less than 1½ hours, while in the majority of cases, with our newer methods and better technique, one-half that time will suffice to give the information needed. The successful and busy physician ought to be willing to relegate this work to those less occupied; he will always be able to find trained assistants to complete this work for him. The simple and rapid methods of staining malarial and other blood films without fixation, after the method of Romanowsky, and with the Jenner panoptic stain, reduce materially the time necessary for gaining satisfactory results.

The bacteriological diagnosis of certain diseases has become a matter of routine with the scientific worker. To the bacteriologist we look for the solution of many important problems in the prevention and recognition of disease. The number of lives annually saved by the application of bac-



teriologic methods to the diagnosis of disease cannot be estimated.

When we consider the advantage of bacteriological examination of the blood, including culture experiments, we are led into a broad field, in which the practising physician cannot do more than accept the knowledge gained from the well-equipped laboratory over which special workers must always preside.

We have not received the encouragement which we deserve from the State in our efforts to prevent and diagnose disease. The policy of the State in this direction has been niggardly and shortsighted. Every section of the State should have a well-equipped laboratory where thorough bacteriological work is done, to give the aid to the profession which for public safety is often promptly needed, and where many difficult questions can be definitely settled. Thus I have found, during the past year, counties in which there were no facilities for making cultures in cases of diphtheria, or for the application of bacteriological methods to the recognition or treatment of disease. Such faulty policy can only end in disaster and useless sacrifice of precious lives. I fear that many in our profession, as well as our legislators, have failed to appreciate what a leading part the microscope and bacteriology play, for an improved diagnosis is but a small portion of the gain to be derived from a scientific study of the causes of disease. "A new direction has been given to treatment."

The enormous advantages of serum diagnosis were well illustrated during the Spanish War, when the fevers prevalent among the American soldiers in Cuba and Porto Rico were claiming so many victims and the differential diagnosis of typhoid malaria and the dysenteries was of such transcendent importance. The blood of 95% of the typhoids showed a positive serum reaction; the malarias were easily recognized by the characteristic protozoa, while the dysenteries gave no positive blood picture.

Cases of typhoid associated with jaundice are mentioned by Cabot in which the diagnosis of yellow fever was eliminated by the immediate typhoid serum reaction. Cabot says, and it is true of serum diagnosis, "The whole process can easily and safely be carried out by the physician in his office, without any laboratory facilities and without half the skill or labor necessary to examine the urinary sediments."

Much has been written during the past few years on the advantage of lumbar puncture in doubtful cases of brain disease, particularly in tuberculous meningitis. Microscopic examination of the fluid has often been negative. Langer sought to aid diagnosis by incubating the fluid withdrawn, but the patients died, as a rule, before conclusions were reached.

For animal experimentation large quantities of fluid are required, even for intraperitoneal injection, and positive results are too long postponed.

It is doubtful whether in case of failure to demonstrate microscopically the presence of tuber-

cle bacilli in the fluid withdrawn, we shall succeed by experiment of any kind in establishing a diagnosis with sufficient rapidity to be of any value to the physician.

It has been found that sugar is usually present in the meningeal fluid in cases of brain tumor, while in tubercular meningitis it is absent, as a rule. It will be preferable to depend on the ophthalmoscope in these cases without the puncture. Lumbar puncture in the hands of the inexperienced or uncleanly is not without its dangers. It is not at all likely that it will ever be adopted by the general profession for diagnostic purposes; indeed, in the majority of cases we are not dependent upon the information which it has been supposed by some to convey.

In occasional cases the diagnosis of malignant disease may be strengthened by the examination of serous effusions and tissue removed after some one of the improved methods.

Cancer cells are no longer considered characteristic. Dock has shown that similar cells are found in cancerous, tuberculous and other effusions. The presence of many cells in serous effusions showing mitosis, either typical or atypical in type, is strongly suggestive of malignant growth.

Centrifugalized specimens may, however, be examined for evidences of mitosis with negative result. The specific gravity of cancerous effusion is low, tuberculous higher, varying between 1,020 and 1,028. The presence of a large amount of blood has in several cases of cancerous effusions raised the specific gravity to 1,020 or even 1,022.

Simon says: "Clinically it is frequently difficult to distinguish between transudates and exudates; and large ovarian, pancreatic, and hydatid cysts, as well as cystic kidneys, may at times be mistaken for ascites. In such cases a careful chemical and microscopical examination of the fluid in question may be of decided value. Very frequently, moreover, it is possible only in this manner to determine the true nature of the disease, and the importance of freely using the trocar and the aspirating needle in diagnosis cannot be too strongly advocated."

The use of the Röntgen rays in medicine seems almost uncanny. It is doubtful whether, with our present technique, we gain many pictures which justify positive conclusions in the study of internal diseases. The greater reliance must still be placed on associated physical signs and subjective symptoms. Certain it is that a correct interpretation of the skiagram requires great experience, and the production of the shadow must always be relegated to those whose practices are limited and who have infinite time and patience to give to this work. I know of no field in which greater perseverance and attention to detail are needed.

We have received valuable aid from the x-ray examinations in diseases of the lungs and heart, especially where an accurate knowledge as to size and movement are needed. The diagnosis of intrathoracic growths and aneurisms has been strengthened by the fluoroscope and skiagram, without ignoring associated clinical manifesta-

tions. This method of inspection has been of greater advantage to the surgeon than to the physician, but to deny its value in medicine would be absurd and unjust.

Changes in the bone, about the joints, and gouty deposits have been satisfactorily demonstrated. Dense foreign bodies in internal organs, such as calculi, are very often demonstrated by the Röntgen rays. Porous calculi have escaped detection in several cases examined by this method. If the negative picture had been depended upon, one case recently seen, in which there were over 500 calculi in the gall bladder, would have remained unoperated.

Skiagraphy may be said to be in its infancy, but we are encouraged by the labors of Williams, Leonard, Stubbert and others, to hope for great assistance in the future from the use of the Röntgen rays in medicine.

The recent introduction of an apparatus for giving stereoscopic vision by the x-ray is believed by some to add materially to the practical value in medicine and surgery of this method of examination. The usual silhouette effect is replaced by a picture which stands out distinctly, showing the space relations of the object viewed.

We are not to be discouraged by the fact that radiographs which seem unsatisfactory to the majority of ordinary observers, are readily interpreted by the expert, for in cases where we must place considerable dependence upon these pictures as giving evidence of pathologic change, we shall give the opinion of the x-ray expert the importance which it deserves, remembering always that we have received but a link, and to strengthen the chain requires the thorough application of other confirmatory methods.

The scientific diagnosis of many diseases of the nervous system has been materially aided by our knowledge of the electrical reactions of the different tissues in health and disease. To those only who have a thorough conception of the newer anatomy and pathology of the nervous system, will electricity give any assistance in diagnosis. Here, as in the localization of central and peripheral nervous lesions, physiological knowledge remains the groundwork upon which diagnosis must be built.

Bennett has, after patient clinical observation in this field of diagnosis, demonstrated the truth of the statement that "Like all of our methods of physical diagnosis, electricity must not be depended upon alone as the sole means by which we are to arrive at a just conclusion in investigating the nature of disease. It is only one of the aids we employ, but which, in conjunction with other facts and observations, is a most powerful auxiliary." There are a sufficient number of instances in which electricity offers data for diagnosis which cannot be obtained from any other source, and for this reason, the general practitioner, as well as the specialist, must acquaint himself with the method of its application, and must possess the underlying knowledge which makes rational conclusion possible. Though elec-

tricity may not be absolutely necessary for the diagnosis of the various paralyses, it remains the means of giving it "a facility and precision which has become indispensable to the neurologist."

Electric reactions, associated with a thorough study of the deep and superficial reflexes, lead to the interpretation of phenomena upon which depend localization and diagnosis in many puzzling conditions.

An instrument of precision too little employed by the general practitioners is the ophthalmoscope, for the introduction of which the memory of von Helmholtz will always be revered. If the information obtained from its use were limited to the eye, we would not consider its value on this occasion; it gives information regarding the existence and nature of pathologic condition elsewhere than in the eye, which is often obtainable in no other way.

Gowers, in his classic work on "Medical Ophthalmoscopy," says: "This information depends upon the circumstances that we have under observation: (1) The termination of an artery and the commencement of a vein, with blood circulating in each; (2) the termination of a nerve which, from its close proximity to the brain and from other circumstances, undergoes significant changes in various diseases of the brain, and in affections of other parts of the nervous system; (3) a nervous structure, the retina, and a vascular structure, the choroid, which also suffer in a peculiar way in many general diseases."

We do not contend that the general practitioner must of necessity become an expert in the use of the ophthalmoscope, but we believe that he must depend upon its revelations if he would early recognize certain diseases of the brain, arterial degeneration, and renal complications. Time does not allow on this occasion of an extensive argument in favor of the more frequent use of the ophthalmoscope by the physician. Many cases might be taken from the records of those who have learned to use this instrument in general medical practice, which justify the great satisfaction with which its use is continued. We have only to refer to the significance of optic neuritis with brain symptoms, however vague, the presence of choroidal tuberculosis in advance of other positive symptoms, the presence of albuminuric retinitis in cases of nonalbuminuric nephritis, and the presence of retinitis and changed vessels in comparatively young subjects with transitory albuminuria and tube casts, to show the value of the ophthalmoscope to the everyday doctor.

Those who for any reason are unable to refer these cases to special workers in this field should educate themselves by post-graduate study in the use of the ophthalmoscope for the recognition of the grosser pathologic changes in the eye.

In the preparation of this address, the fact is appreciated that reference has been made only to a few of the newer methods upon which the profession is today leaning as aids in diagnosis. Limited time does not permit the consideration of many of the methods which are of undoubted

value as adjuvants in the recognition of disease. What I wish to impress is the importance of working systematically and scientifically, however busy we may be in our practices.

"Qui bene diagnoscit, bene medebitur."

It is no secret that the charge has been made that too many patients in this country are often ignorantly and incompetently treated, and our medical schools and system of medical education are held responsible for this state of affairs. We must admit that we too often fail to stimulate the "scientific sense"; men are not educated to work systematically. Raise as high as you can the requirements for admission into the profession; gain the best timber possible, which will always include a majority, receptive and earnest, and these serious charges will be less frequently made. We shall never be able to impress all with the enormous responsibility under which many almost stagger in medicine.

Many agencies have influenced American medicine. Whether these originated from communion with Louis, Lænnec, Trousseau or Charcot in France; whether they were lead by the Berlin School, the immortal Schönlein, Traube or Virchow, and their followers; were founded upon the methods of the Vienna School, from which radiated the benign influence of Bamberger, Duschek, Skoda and a score of others, or were the products of our own enlightened masters of medicine,—and we have had many,—each had a scientific fundament, and each vied with the other in unearthing new truths to be applied to the recognition of disease and its treatment.

The clinical medicine of the past may, with reason, be compared with a rude and hardy plant, now grown, in spite of neglect, to a colossal tree with innumerable branches, richly laden with fruit, its roots reaching far into the fertile soil for nutriment. This soil must be nurtured and sustained—else the tree will fade and die. The new must become an integral part of our being; the new of today is often enriched by the new of yesterday. True it is that "stagnation is something more than death." The physician of today has countless advantages over his forebears; his training makes him more enlightened; he has been forced to equip himself for his life's work. The advantages offered for the thorough and scientific study of disease were never before equaled in this or any other country.

A generous public, by the free giving of material aid, encourages the solution of scientific problems related to disease and its prevention by scientific methods. In return, it has a right to demand the product of our best, our most conscientious efforts. Are we not also prompted by selfish motives to work scientifically? Our only safeguard against quackery is "continued recurrence to the scientific basis on which the practice of medicine rests."

We must gain exact knowledge in order to derive satisfaction from our practice. Even with increasing knowledge the layman's demands may,

in many cases, be far beyond our ability to supply.

We can ill afford to encourage iconoclasts in medicine. Fortunate for us that we have no Paracelsus—a badly balanced genius—a dangerous revolutionist at work to reject all that has been taught because of a pronounced taste for a single science. There will always be extremists against whom the evenly balanced must array themselves. The application of modern methods in the diagnosis of disease must always remain supplementary to bedside study,—but no one who has taken advantage of laboratory methods will deny that much may be learned, by laboratory study, of the greatest scientific and practical importance, without which we would be poor indeed. The practical diagnostician will not be narrowed by the association of laboratory methods with clinical data; he will not become theoretical, but more practical; he will become a more acute and cautious observer because of this training; he will "acquire knowledge at first hand" and make fewer hurried diagnoses; he will be prompted to do more original work.

There are those who, in spite of the fact that we are encouraged in all educational matters to develop the observant sense, continue to decry all laboratory and scientific methods. The scientist is charged with being a dreamer and impractical. "There are some, indeed, who would tell you that the scientific man is ill fated for anything but science; that he cannot be punctual, business-like, a plain speaker, pious, or I know not what else."

"It would be difficult to find greater nonsense in any of the books or journals on a modern book-stall." "There is nothing that a man may not be at the same time that he is scientific" (Paget).

Failures in practice are by no means limited to the scientific. This fact requires no extended argument. Did Schönlein's practical work in Berlin suffer because of his scientific attainments, or because he became the pioneer in Germany in the introduction of physiological methods, the microscope, and chemical analysis, in the study of his clinical material?

Haller had made the attempt one hundred years before, but the scientific fundament supplied by pathological anatomy was wanting. Hippocrates auscultated, and one hundred years before Lænnec, Auenbrugger attempted to introduce percussion as a diagnostic agent. These attempts bore no fruit; pathological anatomy was needed to make clear the meaning of physical signs. It is by no means to be considered an accident that among the greatest advances in medicine made during the century just closed, the introduction of pathological anatomy and auscultation into the clinic, both were introduced by the same clear mind, Lænnec. He is one of the greatest physicians in history. Allbutt has said: "He deserves to stand by the side of Hippocrates, Galen, Harvey and Sydenham. His work was a revelation of the morbid anatomy of the internal organs during the life of the patient."

The physician who is truly successful in practice must depend in a great degree upon the good opinion of his fellow practitioners. Laymen have not the positive means of gauging our ability which those possess who are fitted to judge.

Nothing commends itself to the professional mind as does the thorough scientific investigation of individual cases. Certainly there are among those who have no medical education some who judge reasonably of the physician's worth, but the number of these is few. Of the majority, we may say they are the most ignorant who are most positive and loudest in their praise or denunciation, and these are often the most influential.

Herbert Spencer has well said: "Had we time to master all subjects, we need not be particular."

"Could a man be secure  
That his days would endure  
As of old; for a thousand long years,—  
What things might he know!  
What deeds might he do!  
And all without hurry or care."

Bearing in mind our limited time for acquisition and action, the question which is of such transcendent moment is, whether the methods recently introduced are of sufficient benefit in the study of disease to claim our attention and time. We must determine, in other words, "the relative values of knowledge." If we consider the relative worth of these methods to the clinician from an unbiased standpoint, we must conclude in favor of the adequateness of the advantages. There is certainly a proportion between the required labor and the probable benefit. The young man needs the knowledge and training which the thorough study of disease develops, while those who have grown old in the treadmill must take advantage of modern methods and ideas to retain their standing in the profession.

Sir James Paget, in his Memoirs recently published, writing on the "Ways into Practice," and the "Various Ways out of Practice," speaks candidly on the conditions which affect success and invite retrogression. Between the lines one can read the thoughts of this clear-minded gentleman physician and the appreciation by him of the importance to the honest worker of receiving, after a sufficient period of probation, the methods which were included in the armamentarium of his juniors and pupils.

To those who are practising at a distance from centres where men are devoting themselves to the accurate methods in medicine, a word of warning may not be misplaced at this time. Your influence will not endure if you persist in ignoring methods which have been tried and found useful. You will finally hold only a remnant of your present clientèle. In spite of the fact that the public has never been more credulous or more ready to encourage quackery, the services demanded from the physician were never before expected to be of so high an order. His search must always be after the end of science. "The real and legitimate goal of all sciences is the endowment of human life with new inventions and riches." The individual has a right to demand

of his physician accurate recording of all facts relating to his condition, with a painstaking investigation of every detail which the case offers, by every method needed for accurate observation and ultimate diagnosis. Believing that modern methods of diagnosis lead to the trustworthy interpretation of symptoms with a firm belief in the superior ability of those who have adopted these methods, the lay world is fast removing its former prejudices against hospitals, where medicine and surgery are practised rationally. The consulting rooms of those who are known to employ most thorough methods are filled with all classes of clients. There is a feeling abroad which calls for thoroughness from those charged with the recognition and treatment of disease.

The period has not yet been reached when we can truthfully deny that our art is in advance of scientific direction and explanation. Now, as always, we need common sense as well as knowledge, with ready decision and resourcefulness. This no college or teacher can supply. We must never allow our critical faculties to exceed the practical. It has been truly said that "Practice without scientific re-edification soon degenerates into stereotyped and sterile routine." No amount of extra labor bestowed on the study of disease will prove irksome to him who possesses the true scientific spirit; on the other hand, the consciousness of a duty thoroughly and consistently performed will prove an ample reward.

Out of the clinical laboratory "the new medicine is to come,—the medicine which, penetrating into the intimate processes of Nature, learns to turn Nature to her own correction,—the clinical laboratory is to be the scene of the study of the origins of disease."

"A life full of work and labor is no burden, but a boon, an enjoyment"—this served as the text of Virchow's original thesis. His life has been sweetened by the conscientious and scientific application of his great powers, and it is this spirit which will continue to inspire the physician.

*The moral force of scientific methods in medicine is the greatest factor in modern medical practice.*

## Original Articles.

### SUGGESTION IN MEDICINE.<sup>1</sup>

BY GEORGE C. SMITH, M.D., BOSTON.

IN these days, when such rapid advance is being made in the diagnosis of disease in its prophylaxis and treatment by rest, hydrotherapy and dietetics, it may be well to ask ourselves what we are doing for our patients psychically.

Many physicians, if they consider the psychical side of their patients at all, believe that it may be ignored; others, though recognizing it, feel that it would require too much of their time; while still others think that only the neurologist can do

<sup>1</sup> Read before the Clinical Section of the Suffolk District Medical Society Nov. 20, 1901.

this kind of work, as they do not possess the subtle knowledge necessary. Heretofore, no qualification in psychology and philosophy for admission to our medical schools has been required, and in many no instruction is given in these studies.

To show how this matter is regarded today, I will quote from the Shattuck lecture delivered by Dr. James J. Putnam in 1899. Speaking of the preparatory work for admission to the medical school he says: "I should rate a thorough preliminary course in psychology and philosophy far above a knowledge of botany or zoölogy, and as following close on chemistry and physics."

Edwin Checkley, Esq., professor of physical culture, New York, says the two faculties of mind principally cultivated are memory and imitation, and upon the development of these two the ability of an individual depends to reason, devise and make what he desires. The extent of his acquirement depends upon the desire, environment and possessions of the individual. These faculties are called voluntary.

Suggestion in the restricted scientific sense pertains solely to the subjective mind. The subjective intelligence accepts and acts upon suggestion without reason and without reflection; whereas, suggestion, in the sense that all our education is suggestion, appeals mainly to our reason and is approved or disproved by reflection. When we restrict the power of suggestion to the subjective mind we shall see that it is still the most potent factor in mental development. We first notice it in infancy, when the child cries for everything it wants. It first cries for food and gets it, and receives the suggestion that it gets what it cries for, till after a little it fails to get it, and learns the meaning of no. And as Hudson says: "Whipping a child for a confessed fault imparts a strong suggestion that falsehood is better than the truth, with the result that the next transgression is denied and punishment is escaped, and the child soon learns that lying is better than telling the truth." In this manner liars are made. The persistent suggestion to a child it is a liar, a fool, a thief, inevitably develops the character. Thus we see the dominant factor in molding character is suggestion, the education which addresses the reasoning and intellectual faculties alone being comparatively unimportant.

Dr. Tuke in 1872 wrote a work on the "Influence of Mind upon the Body." Today such an essay would be better entitled the "Influence of Suggestion upon the Body." Suggestion is the cause of the horrible perversion and inversion of sex, instincts and relations so ably set forth by Kraft Ebing. Here we see the danger of leaving a child in its tender years to the care of an illiterate nurse. Every minute it is literally absorbing suggestions made by the nurse and her ignorant associates, which will later form an integral part of the personality of adult life.

There is no doubt that early training would save many a person from hysteria, neurasthenia or insanity later in life — diseases which are often

called hereditary but in reality quite as often acquired.

At no time in life do we see such power of suggestion as in childhood, and a patient under observation now will well illustrate the great impressibility of this period of life. The patient is 40, female, family history good; was frightened when 3 months old, while lying in her cradle, by a person blowing a tin horn over her head to see her jump. This was repeated, innocently, every day for some time, to the great amusement of her family and operator. Later, this story was often recounted in her presence, which fixed the idea, and since, every sudden or sharp sound not only frightens her, but even the expectation of it is quite as alarming. In no other way does this patient manifest nervousness. She is well nourished, and maintains a good degree of health by avoiding public places during celebrations and every place of amusement where firearms are used. This weakness not only shuts the door of many enjoyments, but puts her to great inconvenience to find a quiet place to which she can go.

As an example of the fixation of early impressions upon the future of one's life, you may recall the case of Miss Helen Keller, who, at the tender age of 19 months, was deprived by illness of all her special organs of sense except those of touch, taste and smell. In middle life she recognized the songs of "Black Crow" and "The Ten Foolish Virgins," which her father sang to her in her babyhood.

Dr. Waldstein has shown that our religious beliefs are not originally developed by reason. The religion of our homes is our religion, however great may be the influence of our intellect upon our attitude toward it later in life. And the importance of the formal side of spiritual matters in early life is recognized by religious teachers, and well expressed by Jacobsen in the words "The church bell has rung God into our souls."

The importance of training in childhood has been recognized for centuries, and such expressions as "Tell me what the child was and I will describe the man," "As the twig is bent the tree inclines," "Give me the training of the boy the first seven years and I will vouch for his future religion," — all these illustrate the immortal effect of suggestion upon youth.

As the years advance this power lessens through adolescence and is least in middle life, but increases again in old age. Much more can be done, then, in the way of benefiting the race by educating parents in the mental care of their children. The so-called mothers' class, various neighborhood societies and the kindergarten have done much in this direction, and the physician who goes often to see the little patients can do much more.

A short time ago, when returning from an early morning call, I met on the Common an old classmate who occupies a pulpit of a conspicuous New England church, and jokingly remarked to him that he would have to walk more moderately or some day he would fall. After a few moments

devoted to pleasantries we separated, and I never thought of him again till a few weeks later I met his physician, who informed me that my old friend had spent a sleepless and miserable night, worrying over the thought that I had suggested to him early in the morning. Here was a man apparently in perfect health, and at an age least subject to suggestibility, yet unwittingly made to suffer to the extent of sending for his family physician to see if he had heart disease.

Without citing other cases to show the suggestibility of normal men, I think we may accept the results of the experiments of Sidis in Professor Münsterburg's laboratory, as well as those of Binet and Forel, which prove that man is a suggestible animal. If this is true of healthy individuals, how much stronger must the suggestibility be in disease.

The adult patient consulting the doctor is usually wide awake and specially attentive to learn all he can about himself, as is shown by the eagerness he evinces when some sentence or phrase is uttered by the physician which he does not understand, as he requests more lucid explanation, and he frequently interrupts the examiner to inquire the meaning of this or that inquiry. When asked if he arises in the night to micturate, he often inquires if there is reason to suspect kidney trouble. Or, when asked if he suffers with palpitation, have I heart disease?

He is in a very receptive mood, and consequently a ready recipient of any suggestion which the physician may make. Now, it is important to remember that he is, if in a pessimistic or melancholic mood, more open to evil than good suggestions, hence the necessity of using great caution in the method of examination not to arouse apprehension, as well as care in our suggestion of remedial therapeutics.

I can best illustrate the dangers of harmful suggestions during the examination and treatment, by relating some concrete examples. One of my patients recently told me, when I suggested that she use a mild laxative to move her bowels, that her former physician, a very prominent and able physician of this city, told her 25 years ago that she must never take a laxative, as it would weaken the bowels, adding that it did not matter if the bowels did not move for a week; hence all these years she had avoided the very thing she needed, and developed as a result a chronic endarteritis, arthritis, bronchitis and cardiac disease. More than this, I found it very difficult to overcome this strong prejudice, especially as daily defecation for one accustomed to weekly movements is fatiguing and serves rather to strengthen her belief in her former view.

A patient 28 years old, recently sent to me by a physician of another city, stated that among the diseases from which she had suffered in the past was gallstone, 8 years ago, and that her physician then told her that the formation of this stone was due to the strong medicine which her former physician had given her for the nerves, thus impressing her with the idea that she had been

not only improperly treated, but also with the fallacy that strong medicine can produce gallstone.

Another patient, 36 years old, recently came to me complaining, among other things, of pleurisy, saying that 10 years ago he had had a sharp attack of pleurisy in right side, and the doctor advised him to wear extra clothing on that side of the chest, which he had done for 10 years since. This patient had no fever at the time, and attended to his usual routine business, and finding complete expansion of the lung on the affected side and a movable pleura upon deep inspiration, it is fair to conclude that he did not have a pleurisy.

Last summer, while one of my patients was spending a few months in the mountains in company with her sister, the latter became ill, and my patient offered her some bromide of sodium to take, saying that I had given it to her for similar troubles; but her sister very properly declined, and called in a medical gentleman of most excellent reputation in the neighborhood to prescribe for her. She acquainted him with the above fact, and he replied: "I am very glad that you did not take the bromide, as there are several different kinds of bromides and no one safe to give a patient. They are all dangerous; I never use them." Now, whereas this may be very true when prescribed by the laity, it certainly is not true in the sense in which these two people understood it or the laity as a whole would understand it. The natural inference is that it is dangerous when given by a physician.

Out of fairness to the fraternity we are apt to account for the foregoing statements by saying that patients misunderstand, exaggerate and equivocate, or that the physicians consulted were ignorant and careless. To this I can state that I was careful to select these patients, who had been previously under the care of men of unquestionable skill and ability in this and neighboring cities.

In an address on "Specialism in Medicine," delivered by Dr. F. C. Shattuck, before the Canadian Medical Association last year, he said: "Suggestion may be a more potent therapeutic agent in the hands of an unscrupulous and positive man, ignorant though he be, than in the hands of a highly trained and conscientious man, handicapped often by a painful realization of his ignorance."

The power of suggestion is seen in the faith of our patient in our diagnosis of his case when we have, during our examination, anticipated his symptoms. A gentleman past middle life, with atheroma and aortic stenosis, is asked if he suffers with vertigo upon suddenly changing his position from the stooping to the erect; if he has numbness and prickly feelings in his limbs; if he suffers with headache; if his memory has weakened; if he has lost confidence in his intellectual power, without telling him that he has premonitions of shock, he will believe that you know what ails him; hence a proper use of suggestion during our examination may become a valuable aid in establishing confidence, also in leading to an



autosuggestion that our treatment will be effectual. How many of us have suggested to our patients that a certain placebo or mild remedy would bring about a definite beneficial effect with happy results. Great care, however, in the selection of cases is necessary, as stoics and philosophers are on our lists, and, though susceptible, are not as amenable as artists, musicians and neurotics.

The classical work of Dr. Morton Prince, published in 1898 in the "Medical Communications" of the Massachusetts Medical Society, entitled "The Educational Treatment of Neurasthenia and Certain Hysterical States," clearly delineates, under the head of mental therapeutics, the proper method of employing the power of suggestion, and I would most earnestly request my hearers to read and reread this valuable contribution. Though written upon a neurotic subject, this division of it will apply to many of our patients, for how few of them fail to become neurasthenic at some time during their illness.

To secure the most good from suggestive therapeutics, we should not say this remedy may, but it *will*, relieve. We should make only one suggestion at one sitting, as the mind is best influenced by keeping one thought dominating all others for several days, until the idea becomes fixed, when another can be suggested, and so on. In this manner our patient, though bordering upon, is not quite in the hypnotic condition, and is especially open to suggestion.

Some patients have very little power of voluntary attention, and are therefore said to belong less to themselves than to any object that happens to strike their attention. Business men say the ability to gain the attention is often the secret of success in life. Druggists can sell any patent medicine that is shrewdly advertised.

Our suggestions should be founded upon facts, some of which at least can be demonstrated to our patients. Bacon said: "No pleasure is comparable to the standing on the vantage ground of truth." Oftentimes a suggestion of slight improvement in a symptom is hailed with great delight.

Most patients give the cue for our suggestion when they detail their symptoms. Emerson says: "The key to a man is his thinking." Every optimist believes he has a greater possibility, and we are wise if we take advantage of this element of his nature. No one needs to be told the value of a favorable reaction in the money market upon the depressed spirits of the losing broker, or of the salutary influence of great mental achievement upon the general well-being. When we have developed a feeling of self-confidence in our patients the victory is nearly won.

I once heard Dr. Lauder Brunton say in St. Bartholomew's Hospital, that physicians, after reckoning on all the good their medicine will do in the economy, should always ask themselves what harm they will do, and perhaps they will then not deem it wise to give them. So it is with evil suggestions. Professor James says man be-

lieves what he can, but as a gregarious animal man believes whatever is suggested to him. Sidis says that social suggestibility is individuality hypnotism written large. One needs only a retrospective glance over the mental epidemics of the past to see these statements confirmed. Suggestion and leadership alone did the work.

The crusade epidemics, Flagellantism, the Antisemitic craze, Italian tarantism, the religious manias of the Jews, Holland's tulip mania, the witchcraft mania of later date, and still more recently in our own land have come epidemics of emotional religious manias alternating with business panics. The so-called faith cures, mental healing, Christian Science and Osteopathy are not evolutions of scientific thought and experience, but mere phantasms of evil suggestions. A little leaven leaveneth the whole lump. You all know how a patient returning from a tubercular sanitarium revolutionizes at once the hygiene of his household, and the idea spreads from the home throughout the community, until the sanitary conditions of the entire neighborhood are much improved. In a similar manner good suggestions take root in our patients, and the family and community are benefited.

The pernicious influence of evil suggestion is clearly illustrated in our cases of traumatic neurosis. Victims of railroad accidents are still further victimized by their sympathizing friends and impecunious lawyers, till they become imbued with fixed ideas that are false, and these ideas are often declared by our court trials to be true. It is a burning shame that such patients have to listen to expert testimony and arguments in their own cases.

Another evil result of suggestion is often seen when surgeons summarily dismiss their patients immediately after operation, without reference to subsequent treatment. This seems to me to be the cause of so many failures of surgeons, as the patients leave the hospitals thinking the operation has cured them, only to find, after a few days or weeks, that their old aches and pains are returning. They consult their friends, who criticize the surgeon and in this way bring the profession into ill repute. All this could have been avoided had the case been kept subsequently under the eye of the surgeon or physician till health was completely restored. That this effect extends to the community and reacts upon the medical fraternity as a whole is evidenced daily in our offices, and we find no solace when we visit the homes for incurables. We make the work of our colleague much easier by sending our patients to him or having them consult him of their own account, with minds free from old notions and prejudices. It often requires a long time to get out of our patients' minds ideas jeopardizing health, which have been carelessly allowed to take root.

Want of time has prevented more than a brief allusion to the good that may be done by wise suggestion, and I will merely add in closing that it necessitates in us a more thorough study of



human nature and psychology, makes our examinations more exhaustive, sharpens our observation, broadens our vision, enhances our power of concentration, and intensifies our interest. The result is better diagnoses, prognoses and treatment.

I hope by the foregoing to have aroused in your subliminal consciousness what you have already known a long time, but some of you, I am afraid, have regarded as cold storage.

If this paper elicits a liberal discussion and emphasizes two points its object will be realized:

(1) The need of thorough psychological preparation for the medical school; (2) the danger of bad suggestive therapeutics.

### A CASE OF RAYNAUD'S DISEASE.<sup>1</sup>

BY GEORGE S. C. BADGER, A.M., M.D., BOSTON,

*Assistant in the Department of Theory and Practice of Medicine in the Harvard Medical School.*

MRS. M., 45 years of age, born in Ireland, came under my care April 1, 1900, complaining of intense burning pain in both feet.

The family history is excellent, the patient being one of 16 children, of whom 9 are living and well. There is no history of diabetes, tuberculosis or any other chronic disease. She has always enjoyed good health, save for pneumonia 10 years ago. There have been 13 children and 3 miscarriages. In June, 1896, 4 years ago, owing to an accident, she miscarried at 3 months. At this time she was confined to her bed 11 weeks because of sepsis. Two months later, at St. Elizabeth's Hospital, the cervix and perineum were repaired and the fundus sewed to the anterior abdominal wall. The records give no information about either the general physical condition or the urine. Six months after the operation she felt as well and strong as ever. Her catamenia returned and occurred regularly until July, 1900, when it ceased abruptly.

*Present illness.*—The patient considered herself well in February, 1899, when severe burning pains came on suddenly in both feet, extending from about 1 inch above the ankles to the tips of the toes. In a few days the toes became dark red but not swollen. This condition prevailed with varying intensity and without other symptoms for about 2 months, when a similar pain was felt in the middle finger of the left hand. This was followed by 3 red spots just above the nail. A few weeks later the left forefinger turned dark red, purple and then black. Gradually the last phalanx became wholly gangrenous and very slowly dropped off.

In December, 1899, a few months after the onset of the gangrene, she noticed marked increase of urine accompanied by a great thirst. A few weeks after this she went to the Boston City Hospital, where she was told she had diabetes.

<sup>1</sup> Read before the Clinical Section of the Suffolk District Medical Society, Nov. 20, 1901.

There is no record of a physical also ical examination. Instruction about diet was given and followed, with the result that the polyuria and thirst subsided. There was some complaint of failing vision, but it was not enough to prevent the daily use of the eyes. Her weight, which before the accident had been 145 lbs., was now 96 lbs.

In March, 1900, some 6 weeks before I first saw her and shortly after her visit to the City Hospital, there was a return of the pain in the feet followed soon by a dark color of the toes. A few days later she noticed a sore under the ball of the right great toe, which became black, dry and hard. In about 2 weeks this dropped off, leaving a small scar.

This brings her history to the time when I first saw her, April 1, 1900, suffering again from pain in the feet.

Physical examination showed the patient to be a thin, tired-out, nervous little woman, with pupils equal and reacting equally to light and distance. The knee jerks were normal. The radial arteries were straight but in the condition of marked arteriosclerosis. The pulse was regular and of good strength and volume. The heart was apparently normal.

A few scattered râles were heard in the lungs. The abdomen presented nothing abnormal save the scar of the laparotomy.

*Extremities: Hands.*—The last phalanx of the left forefinger was absent. The rest of that finger and the middle finger were very cold, slightly tender, and much darker than the other fingers. They were stiff and clumsy, as if benumbed with cold. There was diminution of sensation. The radial artery pulsated in normal manner. There was no pain or tenderness of the nerves of the forearm; no atrophy or paralysis of the muscles.

*The feet.*—Both great toes and the 2 adjoining toes of the left foot were cold, glossy, and of a dark color, which faded away towards the tarsal bones to the normal color. There was no tenderness or redness along the nerves, no atrophy or paralysis of the muscles. They were the seat of intense pain.

*Urine.*—The 24-hour amount was not known. It was pale in color, acid, specific gravity 1.020; albumin a very slight trace; sugar 1.4%; no acetone or diacetic acid. Sediment; a few hyaline and granular casts, urates and some squamous cells; no blood.

She was placed on a diabetic diet, given tonics, and the extremities were massaged with chloroform liniment and bound in thick cotton dressings.

Within a week after this examination a superficial gangrene attacked the under side of the ball of the left great toe and of the 2 adjoining toes. These gangrenous areas appeared first as blebs, about the size of a ten-cent piece. These slowly dried with a resulting black eschar, which in the course of 2 weeks dropped off, leaving a small conical cicatrix.

Wishing to have her under better observation and control, she was admitted to the Baptist Hos-

pital May 15, 1900. With a more careful diet, and the use of stimulating tonics, there was a general improvement with a slight gain of weight. The urine was secreted in normal quantity and free from both albumin and sugar. The extremities became natural in appearance, save on one morning, when, after washing her hands in cold water, the fingers previously affected became pale and cold. This local syncope lasted about two hours. At the end of a week she returned home apparently in good condition, remaining so all summer.

In November, 1900, with the beginning of cold weather, the pains in the feet returned. Living in a cold, draughty tenement house and compelled to do her own work, the conditions were most favorable for a recurrence of the disagreeable phenomena. The middle of November I saw her again, and the left hand presented about the same appearance as previously described. The fingers were cold and glossy, the middle finger very pale, the index finger purple. The corresponding fingers of the right hand were pale and cold. The great and two adjoining toes of both feet showed an intense asphyxia and were very painful. Physical examination presented nothing new; the urine contained neither albumin nor sugar. Exposure to cold was guarded against as much as possible, the feet were massaged with chloroform liniment and kept well covered with cotton dressings. Some slight improvement followed, but as she was compelled to use her hands, without protection, they were always cold and pale whenever I saw her.

In January, 1901, a cough developed, which rapidly grew worse. Examination at this time showed a general bronchitis, with signs of consolidation at the right apex, the sputum containing many tubercle bacilli. Again the extremities presented the remarkable vasomotor phenomena already described, with the areas of superficial gangrene under the toes. After these gangrenous patches had fallen off, there was an evident loss of substance with small cicatrices remaining. The urine, at this time, examined by the pathologist of the Boston Dispensary, was pale, acid, with a specific gravity of 1,010, albumin and sugar absent. Interesting cerebral phenomena now appeared. On two or three occasions she was found lying on the floor apparently having fainted. On another occasion, having started for the grocer's only a block away, she lost all idea of where she was and of where she was going. After a long aimless walk, a man, noticing her evident distress, explained to her that she was down town and sent her home in a cab.

During February she lost ground rapidly, and in March was confined to her bed. The extremities no longer troubled her, and during the remainder of her life the clinical picture was that of pulmonary tuberculosis. In May, 1901, she died. No autopsy was obtained.

This case certainly presented the phenomena of Raynaud's disease. The title of his original article, as translated by Thomas Barlow, is "Lo-

cal Asphyxia and Symmetrical Gangrene of the Extremities." He claimed that the condition was due to a spasmodic contraction of the arterioles from a vasomotor excitation; presuming that there was no change in the circulatory apparatus adequate to explain the results.

In the case reported tonight there were two conditions present with which gangrene is frequently associated—glycosuria and arteriosclerosis. It seems possible, however, to eliminate these as the causes of the phenomena. Gangrene associated with glycosuria occurs almost always in those patients showing arteriosclerosis. It usually follows some slight injury, and if limited to one digit or extremity affects the whole part, and produces a rapid necrosis. It is usually attended with considerable inflammatory reaction at the line of demarkation, and is rarely symmetrical or recurrent. In this case, it will be remembered, the symptoms of diabetes came on some months after the beginning of the local gangrene. The glycosuria was easily controlled by a proper diet, and yet the local symmetrical gangrene returned in the toes, and the loss of the terminal phalanx of the finger followed evidences of vasomotor disturbance in other parts.

In only 6 of the 31 cases reported by Raynaud is mention made of the urine, and in none of these was sugar reported present. One case reported by him was later reported by Fox as dying of diabetes, albuminuria and general atheroma of the arteries.

It is more difficult to eliminate the arterial changes as the cause of the phenomena. There was decided arteriosclerosis, yet without any recognizable cardiac or grave renal disturbance. Senile gangrene is typically unilateral, or if symmetrical not synchronously so. It affects by preference the lower extremities, and involves the whole digit or extremity. It is progressive and serious. In the case reported, with the exception of the finger, the gangrene was symmetrical and limited to the skin of the toes, and was not progressive or serious.

It may be that in my case there was an arterio capillary fibrosis, involving especially the extremities. G. W. Jacoby<sup>2</sup> reports a case of numbness and coldness of the fingers followed by asphyxia and gangrene of the entire phalanx of the left middle finger. Later, interstitial nephritis with cardiac hypertrophy developed, followed by apoplexy and death. He thought the primary lesion was an arterio capillary fibrosis, extending later to the renal vessels and producing the nephritis. Such a condition could not be diagnosed with certainty during life, and cannot, therefore, be ruled out in the present case. There were no evidences of capillary fibrosis other than in the extremities. There were no signs of thrombosis or of embolism.

The absence of pain along the nerves, of anesthesia and of paralysis, seem sufficient to rule out a neuritis grave enough to produce such severe symptoms.

<sup>2</sup> New York Medical Journal, Feb. 7, 1891.

Raynaud's phenomena may appear during the course of many diseases; it has been noticed particularly in asylum cases, as a manifestation of hysteria, and as a complication occurring in the course of many organic nervous affections. It may appear, too, as an independent disease. It is not always symmetrical or limited to the extremities. Raynaud himself, and others since him, have observed with the ophthalmoscope the contraction of the central artery of the retina. Paroxysmal hemoglobinuria has been frequently observed during local manifestations of the disease. C. C. Aitken,<sup>3</sup> an English observer, reports an interesting case with Bright's disease, in which during the spasm of the arterioles in the extremities, and in the central artery of the retina, there was a marked decrease in the elimination of urea, accompanied by convulsions. The author thought the decrease of urea was due to a spasm of the renal vessels.

Severe cerebral complications are reported as convulsions, loss of consciousness and aphasia. William Osler<sup>4</sup> reports a case in which epilepsy occurred only during the local symptoms; and another case in which transient aphasia with loss of power in the right hand and paresis of the right foot occurred, with rapid recovery. This condition recurred, and always with local symptoms, in the hands.

Thus we see the diversity of the symptoms of Raynaud's disease, and it does not seem unreasonable to group under this name the many symptoms recorded in this case.

## VACCINATION AND SMALLPOX.<sup>1</sup>

BY E. H. DURGIN, M.D., BOSTON,

*Chairman of the Boston Board of Health.*

AN audience of this character does not need to be argued with as to the need of vaccination to prevent smallpox. It seems to me that the question of its need has been settled in every civilized country. I think the data already sufficient to warrant the expression that vaccination is a necessity if we would avoid smallpox. There is one thing, however, which ought to be impressed upon the medical profession, and that is that we do not vaccinate enough. We are having too many cases of smallpox among those who are supposed to be sufficiently vaccinated. Of this there is no sort of doubt, and this fact is helping those who are trying to prejudice the public mind against vaccination. They point out the fact that many people who have been vaccinated have smallpox, and some of them die. This is true, though it need not be so. I am fully persuaded that full vaccination will prevent smallpox. To secure this I believe that a child should not only be vaccinated when very young, but that the physician should

feel called upon to exhaust all susceptibility to smallpox by repeating the operation until it will no longer take effect. I think at the age of 10 or 12 years this process should be repeated to the same extent. Later in life, on exposure, I think vaccination should be repeated. The data in our own city is evidence to us that, as a rule, the unvaccinated die and the vaccinated get well. Some serious cases of smallpox are found among adults who were vaccinated in infancy, but have since neglected it.

In regard to the difference between humanized and bovine lymph, I would like to say, as a matter of interest, that in the Republic of Mexico for 97 years they have used almost nothing but humanized lymph. This lymph was brought from Europe in 1800, and since that time it has been produced and handled by only four persons selected by the government. The children from whom the lymph is taken are well selected, the lymph is well cared for, and furnished free of expense, as it should be here. They never revaccinate, neither do they have smallpox among the vaccinated. My authority for this statement is Dr. Eduardo Licéaga, the president of the Supreme Board of Health of the Republic, a man of long public experience and unimpeachable character. This experience in Mexico has impressed me so strongly that I have asked that there be a committee appointed, and it was appointed in September, at the last meeting of the American Public Health Association in Buffalo, to investigate and report upon the respective immunizing power of human and bovine lymph.

I have been unable to satisfy myself whether the occurrence of smallpox among those who have been vaccinated depends upon our carelessness in vaccination or upon any possible deterioration in the bovine lymph which has been in almost exclusive use for the last 30 years. At all events, I think the question should be carefully studied. The many questions which are being asked concerning the technique of vaccination suggests the desirability of a more uniform and careful method. Aseptic conditions are as necessary in this little operation as in any other operation in minor surgery. A scarification  $\frac{1}{8}$  to  $\frac{1}{4}$  of an inch in diameter is ample, and it seems to me should never be exceeded. The drawing of blood to any extent is worse than useless. Scraping off the outer skin and bringing a redness is sufficient. The care in rubbing on and drying in the lymph are important. The shield, I think, on the whole, is a nuisance. It may be useful for an hour while the lymph is drying and for the early readjustment of clothing when time is valuable, but continued use of the shield is liable to be troublesome. The subsequent treatment should be conducted precisely like any other surgical operation. Many people believe if they get a big arm the vaccination is correspondingly good. This should be regarded as an error. The breaking of the vesicle gives an open wound, which should always be regarded as a misfortune. I believe the physician should always see the patient at the end of a week or ten days and tell him

<sup>3</sup> *Lancet*, 1896, p. 875.

<sup>4</sup> *American Journal Medical Science*, 1896.

<sup>1</sup> Remarks made before the Boston Society for Medical Improvement.

whether or not there is a typical vesicle, and if it is not, he should repeat the operation. Constitutional disturbances, local swelling of the arm and glandular tenderness are well known, and are a part of the disease vaccinia. It has been observed in a few instances lately with glycerinized lymph, that the vesicle, instead of appearing at the end of 5 or 6 days, may be delayed for a period of 12 days. Dr. Walsh of Washington, proprietor of the National Vaccine Establishment, told me yesterday that he is using blood serum from the vaccinated calf instead of water in preparing the dry points. This not only gives a dry point readily, but the glycerinated lymph dries very much quicker on the arm. He also told me of the interesting experiments with the blood serum from the vaccinated calf which was injected into the smallpox patients and which appeared to abort, or very much shorten, the disease. It was tried on several cases with rather interesting results.

As to what the Board of Health is doing with the present flurry of smallpox: we are picking up cases as rapidly as they are found and taking them to the hospital. We have now three hospitals full, which means about 175 cases. Within the next few days we expect to have increased accommodations for 150 more. The prevalence of the disease is not subsiding and is not likely to for awhile yet. People are not yet sufficiently vaccinated. The ambulant and unrecognized cases are spreading the disease, and have been doing it to an extent which has never before obtained in my experience. In the greater prevalence of smallpox in 1872 and 1873 there were 1,040 deaths, or about 30% of the cases; we are now losing about 13% of the cases.

In regard to the subject of vaccine lymph: we shall ask the legislature at its next session to authorize the State Board of Health to produce and furnish our vaccine lymph. The State Board of Health is competent, has the confidence of the people of the State, and can give its guarantee of pure and active vaccine lymph, free of charge, to every person in Massachusetts, just as is being done with diphtheria antitoxin. We shall hope for the backing of every physician in Boston. As to the percentage of vaccinated people in London, some of the figures quoted are a little old at the present time. They are beginning to suffer from the neglect of vaccination. The people of London are today suffering from smallpox more than any city in this country. England, in consequence of its neglect of vaccination, is in serious contrast with Germany, which enforces vaccination and has no smallpox.

With regard to Boston, I am sorry to say that she has been caught in a poorly-vaccinated condition. We went through the city in the winter of 1872 and 1873 and gave thorough vaccination. Since that time we have experienced an unusual freedom from smallpox, much indifference and some misguided objection to vaccination, and are, in consequence, easy victims to smallpox. Under the statute law, every child in Massachusetts must be vaccinated before it attains the age of two

years, and for neglect of this duty the parent or guardian may be prosecuted and fined. An amendment to this law took place a few years ago, so far as school children are concerned, which allows any child to attend school who can bring a certificate from a physician stating that it is an unfit subject for vaccination. The antivaccinationists are apparently utilizing this law as a convenience to their belief, which is that nobody, however healthy, is a fit subject for vaccination, and they are certifying the most healthy children as unfit subjects for vaccination.

### Reports of Societies.

#### SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting Nov. 20, 1901, DR. V. Y. BOWDITCH in the chair.

DR. G. C. SMITH read a paper upon

#### SUGGESTION IN MEDICINE.<sup>1</sup>

DR. PUTNAM: The subject that Dr. Smith has opened seems to me really one of the most important in medical therapeutics. Indeed, I think that everyone practically believes that to be true, and the reason that no more is said about the value of suggestion in therapeutics, and no more systematic attempt is made to use it and to avoid mistakes to which Dr. Smith has alluded, is, that it seems to many physicians to involve too personal an attitude toward the patient. Then, also, the methods require working out, and they have not yet become accustomed to them, and the idea is a little unfamiliar. A number of things that Dr. Smith said I should like to refer to. In the first place, in regard to the causation of disease through suggestion. Many of us have had a great deal to do with the traumatic cases to which he has alluded, and I think anyone who consults his notebooks will observe a great many of the neuroses, neurasthenias and hysteroneurasthenias and the like very commonly have their more or less sudden origin, which might be called quasitraumatic, as sudden grief or fright.

In regard to the physicians, it is certainly true that the doctors, by their thoughtless remarks, sow the seed of an immense amount of trouble. It is common enough to hear a patient say she cannot take this or that. You ask why, and she says: "Dr. So-and-so told me so." We all know that consulting physicians feel themselves under an obligation to be extremely cautious in what they say so as not to injure the attending physician, and how easily a thoughtless word or shrug of the shoulders or wise looks may make the attending physician extremely uncomfortable and the family uneasy about things he has done.

<sup>1</sup>See page 108 of the Journal.

Any of us who have occasion to consult are careful about such things as that, but I do not think we realize as thoroughly as we should, that whenever we see a patient we are practically consulting physicians; that the doctor who comes after us may suffer or gain from the sort of impressions we leave on the patient's mind, and that we are bound to leave such an impression that he will find his part easier to play, and not harder, for what we have done.

The scientific aspects of this subject of suggestion have gained enormously in the past few years through the immense advance in the study of the personality from certain particular points of view. We have learned to recognize, although as yet probably much less than we shall, the comparatively small part played by our conscious life and the comparatively large part played by the subconscious activity. It is that with which we have to deal all the time when we come in contact with patients whether we will or no, and with which we must learn to deal properly.

Dr. Smith referred to *diagnosis* as dependent on our interest in suggestion, and I think that is also very true. The recognition of our ability to treat certain sorts of diseases stimulates us to recognize the diseases themselves, and to draw fine distinctions among them.

As regards the *methods*, it is impossible to speak in detail. I believe they are susceptible of being worked up far more definitely than has hitherto been the case. At present we trust too much to our ingenuity in the particular case in hand, and to what is called personal magnitude, if we happen to have it, and by leaving the treatment unsystematized, in that way we throw too much relative power into the hands of those who rely unduly on their "personal magnitude." I was, therefore, glad to hear Dr. Smith speak of trying to enforce one thing at a time as just the sort of suggestion that would undoubtedly bear fruit. That was Lincoln's method of conducting an argument before a jury. He talked on one point, and hammered away at that, and left others, which might be very good, for the sake of enforcing that one. I have not at this moment anything to offer specifically as to methods. I believe that fertility of resource, patience and persistence are all of immense value. If one is determined to bring about the result I think one can generally do it. Recently I have had to treat a case of hysterical aphonia which Dr. Coolidge turned over to me,—a very intelligent young woman who had been inarticulate for 16 months. He had treated her carefully and thoroughly by various methods such as often succeed, and I tried a number of others, but at first without effect. I then told her I believed she could sing. That idea apparently caught her fancy, and she went home, sat down to the piano, and after some attempts brought out a note. The next morning she spoke slowly but clearly, and since then she has been able to talk freely.

These photographs illustrate 2 cases at the hospital of almost hysterical ptosis, one treated at the Eye and Ear Infirmary, the other at the Mas-

sachusetts General Hospital. The two sets of pictures represent two facts of considerable interest. One picture shows the patient trying to open the eyes and apparently unable to do so. The other picture shows that if she holds one eye closed she can open the other. The other girl, though she is evidently trying to open her eyes, yet is not trying in an efficient way, for the wrinkles are on the wrong side of the forehead. This is characteristic of all hysterical paralysis. Both of the cases have been cured, although the younger girl shows a tendency to relapse.

DR. MORTON PRINCE: I wish I had known the direction which Dr. Smith's admirable paper was to take, that I might have put together some ideas in a coherent fashion that would be worthy of the discussion. I am entirely in agreement with the general position which Dr. Smith has taken, and in this connection I think that everyone must be impressed with the great change of sentiment that has come over the medical profession on this subject within the last 10 years. I recall perfectly well the medical meeting about 10 years ago, when the subject of suggestion as a therapeutic agent was first brought up, and I recall what might be called the fulmination of professional opinion that was hurled by some of the speakers at the heads of those who ventured to believe in the psychological law of mental suggestion. The authority of great German names, in lieu of facts and personal experience (as is usually the case when these are wanting), was quoted and thrown at some of us who ventured to support this position. The paper of the evening was read by Dr. Osgood, and although he was somewhat extravagant in some of the claims that he made at that time, still it was known, or should have been known, that the principle of suggestion was as old as the hills and was one of the general laws of psychology. I have lived to see those who were skeptical at that time, skeptical from lack of knowledge of the subject, finally, with equal lack of knowledge of its true principles, recommending it for the cure of all sorts of impossible conditions.

There are two kinds of skepticism: One, based on a lack of knowledge of all the conditions involved, and, therefore, nothing but a general unfounded disbelief of the unknown; and the other, proper scientific skepticism which comes from a complete knowledge of all the conditions involved. The latter is the true skepticism of science, and without it scientific advancement would be impossible. It is this kind of skepticism which alone justifies the denial of observations made by competent observers. The principle of suggestion, although not as yet thoroughly understood in all its details, has come to be recognized as the expression of a psychological law. Its efficiency in the production of certain phenomena cannot be denied without convicting one's self of ignorance of psychophysiology. What is of more importance is that we should determine its limitations, and not attempt to apply it to conditions which it does not govern. It is de-

sirable that physicians should understand in what class of cases suggestion is likely to be effected and what class not. I have been astounded not a few times by requests made of me by practitioners to treat by suggestion diseases that were not only organic but even incurable. I have thought that it was no wonder that these practitioners were sometimes originally the most skeptical of the law of suggestion.

I believe there is a fertile field for suggestive influence which has not yet been thoroughly exploited, although some good work has been done in it, namely, pedagogy. I wish that somebody would take up this subject and make a systematic study of what can be done by suggestion in the way of development of character and establishing good habits in wayward children. Some time ago I was approached by the head of an orphan school with this idea in view. The principal of the school was dissatisfied with the effect of conventional discipline in training boys, some of whom gave an immense amount of trouble from their vicious and wayward habits, and offered me the opportunity to experiment with suggestion on a large scale. It was a fine chance, but I was too busy to take the subject up. It seems to me that pedagogy offers a splendid opportunity for the training of children in desirable habits of mind and body through suggestion, and at any rate is a field that ought to be exploited. I believe a great deal could be done in the training of wayward children, and particularly in institutions where vicious habits are largely the result of mimicry or moral contagion.

Now, as to the question which is the reverse of that of pedagogy, namely, the development of pathological processes through unconscious education, I agree with the reader that this plays a very large and important part in social life. There is no doubt in my mind that there is a large number of invalids whose symptoms, or many of whose symptoms, are nothing more or less than the products of education. This is particularly true with those who have what I have called pseudoneurasthenia. These symptoms may be created through self-education or autosuggestion, or they may be educated by suggestion from the environment, including the unintentional influence of the physician. If this were so, if symptoms were not created in this way, we should be obliged to formulate some theory to account for why it is not the case. It must be the case, because laws of the nervous system are general, not special; Nature works by general, not by special laws. The nervous system does not have one law for pleasant feelings and one for unpleasant. Physiologically speaking, it is plain that education depends upon the association of constant grouping of nervous processes, which are repeated over and over again in the same association until they become automatic. These associations are primarily started by suggestion, or mimicry, which is the same thing, but finally become automatic by repetition. Thus it is that all mental and physical acquisitions and accom-

plishments are brought about; this is the law of association, and without this law no education, no acquisitions, no accomplishments would be possible. There would be no such thing as memory, including in this term conscious memory and the unconscious physiological memory of muscular groupings. Thus language, singing, violin playing, golf, sparring and the sports are learned and performed. Now, among the possible activities of the body there are some which are pleasant sensations and some which are unpleasant; and there are some muscular actions which are desired and some which are undesired. Now, by suggestion and association a number of pleasant sensations and desired muscular activities may be grouped together, and then we call it an accomplishment; but, by the same law, unpleasant sensations and undesired activities may be grouped together, and then we call it a neurosis or psychosis. This principle is a very important one and I think cannot be insisted upon at too great length. It is the principle underlying functional disease; in fact, it may be said that it is only disease symptoms which are grouped in this way that can be said to be truly functional—functional in the sense that it makes use of physiological or functional processes. I repeat: Among the numerous physiological sensations and activities of which the body is capable, some are pleasant and some unpleasant; all are capable of being grouped together by association and habit in such a way as to become automatically excited. The pleasant activities become grouped together as educated accomplishments. By the same law the disagreeable and undesired sensations become grouped and automatic. An association process having been once started and then repeated over and over again, we get a group of physiological processes, phenomena, which we call a neurosis or psychosis. We may call it a habit or association neurosis. There are many neuroses of this kind involving widely different functions; some of them psychical, some of them corporeal, some both. But the principle underlying all is the same. Sometimes the bundle of sensations thus created form a group of symptoms in the midst of other symptoms due to true organic disease. If you look closely, I think you will find that in almost all long-standing cases of neurasthenia a group of symptoms can be recognized which form a sort of nucleus in the mass of other symptoms, and which are merely the habit products of autosuggestion or external suggestion. The symptoms of this nucleus have become grouped together and repeated over and over again, until by habit they have become automatic. I would be willing to make a wager that you cannot show me a neurasthenic who has been an invalid for a long number of years who does not show a group of habit symptoms which have been educated either as the product of her own ideas or of her habits and environment, including therein her physician. These symptoms thus come in time to form a true neurosis implanted in a true neurasthenia. Sometimes you will find that the symptoms constitute...



a neurosis or a psychosis of this kind. Their variety is legion.

I want to mention here one very interesting example which is not generally recognized, namely, a particular type of hay fever. There is no question that there are numbers of cases of hay fever which are nothing more than a variety of habit neurosis, or association neurosis, as I have termed it. Even the physical symptoms are nothing more or less than the result of the grouping together of functional processes originally started by a true coryza. You will remember the classical case of Mackenzie of Baltimore, into whose office a lady came complaining of hay fever. He examined her with the greatest care to make sure she was at the time free from an attack. He then brought from behind a screen a bunch of roses, the sight of which immediately excited before her eyes an attack of hay fever. There was lachrymation, congestion, secretion of mucus and so on. Thereupon he showed her that the roses were artificial. I have had not a few cases of this kind which I was able to demonstrate were nothing but habit neurosis. For example, there was a family in which four members were affected with hay fever. Each of them had his or her day on which the neurosis developed after the subject was exposed to a special exciting cause, which was variously designated as pears or sunshine, dust or flowers, etc. Without going into the details of an individual case I would like to explain my theory of the genesis of this neurosis. If you inquire closely into a case of this kind you will find that it has dated from a particular time when the patient had a common coryza. At that time some one suggested, or in some way the idea was given; that it was hay fever and that it was due to come at a certain time each year. The day of the year becomes sooner or later fixed. We will suppose this is the 22d of June. About a week before that date the patient begins to be apprehensive, looks forward to the expected attack, and by apprehension suggests to himself that when exposed on the 22d of June to certain influences, for example, roses, he would have an attack. The patient does not expect that on the 22d of June, on awakening, he will have an attack, but that on the 22d of June, after exposure to a given cause, the attack will be excited. The 22d of June comes; some time during the day he is exposed to one or the other exciting causes and the neurosis is exploded. It is the irritation of dust or some smell or some visual image that excites the neurosis, but it does so, first, because the symptom group has been formed, and by apprehension the patient suggests that this event will occur. In every way it is similar to what is known as post-hypnotic suggestion. In hypnosis a suggestion is given that when a clock strikes the patient will sneeze; later, when awake, the clock strikes and the suggestion is carried out. Some of these cases of false hay fever can be cured by suggestion, and surely if hay fever can be cured by suggestion it must be a functional matter. I cannot help thinking from my experience that a very large proportion

of cases of hay fever are nothing but neuroses, and that probably the great reputation which some places have obtained as cures of hay fever is because they are places to which people go as to a Mecca or Lourdes, with the expectation of being cured. I wish that those who have the opportunity of seeing more cases of hay fever than I do would study the disease from this point of view with the idea of determining what proportion of cases consists of a neurosis of this kind.

There is another neurosis which I mention here, because it is very common, but not generally recognized as a neurosis, namely, what I have called "fear neurosis." It is very common among musicians, lawyers, physicians and others who are in the habit of appearing in public. I have been frequently consulted by its victims. It is generally looked upon as a simple self-consciousness or stage fright, but I believe it to be more than this and a real neurosis. I say neurosis and not psychosis, because the psychological element may be entirely absent or so slight as not to be noticed. It consists almost entirely of the physiological manifestation of fear without the element of fear itself. The neurosis consists of flushing of the face, ataxia of the hands, palpitation, tremor, mental confusion, and so on. I have been surprised to learn from what seems to me to be reliable information how many of the great violinists of the world are affected to a degree that really hampers their playing. But it is not confined to such people. Private individuals are frequently affected when going among people in private social life and in public places. A patient under my care now, for instance, a physician, suffers intensely simply from meeting the passers-by in the street, or while driving, or going into public places like a smoking-car or theatre. The wife of a physician could not go to live in a hotel, or to church, theatre or social entertainments. A Harvard student was unable to pursue his studies in college. The neurosis may begin in early life as a sort of stage fright or self-consciousness, but finally becomes developed in the same way as does the hay fever neurosis of which I have spoken. The intensity of this neurosis may be so great as almost to spoil all pleasure in living.

DR. DOUGLAS GRAHAM: Is that easily cured by suggestion?

DR. MORTON PRINCE: No, not easily cured; no habit neurosis is easily cured; but I have been able to cure a number of cases.

There are a number of other types of neuroses which are the result of education but which I will not take the time to discuss at this time. One of the most important is pseudoneurasthenia, which I have already referred to, which mimics true neurasthenia. Many of the fixed or insistent ideas, fixed sensations in various parts of the body, some forms of *folie de doute*, are in my judgment only varieties of this type of neurosis, although they may be developed upon a neuropathic soil. These in themselves make an interesting study from this point of view.



It seems to me that the term functional, as applied to disease, should be limited to symptom groups which are the expression of physiological or functional processes. Unless used in this sense, the term functional disease has no meaning. All these neuroses make use of physiological processes and are therefore functional.

DR. E. W. TAYLOR: Several points have not been as specially alluded to either by Dr. Putnam or Dr. Prince. In the first place, the question which Dr. Smith brought up, of the desirability of a qualification in psychology and philosophy for entrance to the medical school. That is an important question and one which I should suppose would come up before very long, before the men having the course of instruction in charge. So far as I am aware, neither philosophy nor psychology are even recommended for the student of medicine. How far it is desirable, with the large amount of biological study that is now demanded, to require the student to devote himself to metaphysics or abstract psychology is, I think, an open question, but that he should have the option and recommendation to pursue such studies in his academic course would certainly be very appropriate. It does seem to me, it is perfectly possible for the students in the medical school later on to have instruction which would be valuable in the line we have been speaking of without a profound knowledge of philosophy in the particular sense. With a skilful teacher it would be possible for the student to be given information and knowledge of practical use to him. What we need very decidedly in the curriculum of the medical school in this branch is a recognition of the fact that suggestion is now a distinct therapeutic measure. This should come from the therapeutic chair, it seems to me. Of course it is spoken of in the various courses and particularly in the course of neurology, but so far as I know, it has no special recognition in the course in therapeutics. It should, to my mind, be introduced to the student in the second year by some one who has a particular interest in and knowledge of this subject. At present the student goes through the medical school without recognizing even in the vaguest sort of way the value of this treatment. It often happens that one of the papers before the Boylston Medical Society is on the general subject of suggestion, and the discussion that follows is usually of a considerable degree of value, showing the general interest which the student body has in this matter, and it has for a long time seemed a great pity that the instructing body should not recognize this fact. I speak not only of the Harvard Medical School; I presume the same condition prevails in all the medical schools and in Europe, although there certain courses are given in hypnotism.

The practical question of how to treat by suggestion I shall not take up. It is too large a subject. It was rather noticeable in the discussion tonight that no allusion has been made to hypnotism, which shows in a general way the recognition of the fact that we can do a great

deal in the treatment of our cases without the actual intervention of the hypnotic sleep. I presume none of the gentlemen here would wholly deprecate the use of hypnotism in definite cases. I am aware that Dr. Prince has used it to a certain extent. However, it is an interesting point that it is coming to be recognized that hypnotism is not essential, and this, I think, is a very valuable fact as regards the attitude of the profession towards the general subject. The word for a long time frightened people. If we can eliminate the general word hypnotism from the subject, I have no doubt that suggestion or mental treatment will be very much more generally recognized and taken up by members of the profession who are not personally interested in this line of work.

Another thing: To my mind it is wholly wrong absolutely to limit suggestion to a certain class of cases. The tendency is for the physician in general to say: "Suggestion is very well for certain cases of disorder of the nervous system, but we cannot use it in our general practice." This seems to me to be a mistake. It may, and should, be used in any sort of case, whether surgical or medical, which comes into the hands of a physician. It should be used intelligently and with design by physicians, whatever their work may be, and, as Dr. Smith has said, I have no doubt the ultimate results of certain surgical operations would be very favorably affected by suggestion. I have in mind a case in which death was apparently about to result from hysterical symptoms apparently brought about through a surgical operation.

Dr. Prince has spoken of the absolute importance of early training of children. It is often said that those who are dealing particularly with the nervous system accomplish very little in their treatment; in individual cases they can do very little to alleviate the conditions. Just here comes the importance of prophylaxis in disorders of the nervous system, in the same sense that prophylaxis in smallpox comes in the field of bacteriology. Skilled neurologists should devote themselves to the education and to the direction of the education of young children. We have all had cases in which without difficulty we have traced a neurosis to disorders which had originated oftentimes in early childhood, building up gradually, as a snowball gathers size as it rolls down hill, until finally, at the twenty-eighth or thirtieth year, the ultimate disturbance comes and a definite neurosis is aroused, which the patient attributes to a condition of a few months' standing rather than to a lifelong condition. This leads to the great importance of separating the true neurasthenic state from the pseudoneurasthenic state, separating neurasthenia and exhaustion neuroses, which we have recognized since the time of Beard and which Dr. Mitchell has done so much in bringing to the attention of physicians at large, from association neuroses — neuroses which have absolutely nothing to do with fatigue, and which are on a different basis and should be treated in a

different way, usually not by rest, but by distinctly other measures, of which suggestion is the most important. I have no doubt we shall make a great advance in the treatment of these neuroses when we come to recognize that neurasthenia is a word which should not be applied to all, and that rest as a means of treatment is applicable to relatively few.

DR. C. F. FOLSOM: I think that the medical profession has been going back in the last 30 years in respect to what is now called suggestion, and it is due, I think, to the fact that medical schools have become so interested in teaching exact sciences that they have lost sight of treatment. Thirty years ago the late Dr. Clark was professor of therapeutics, and anybody who followed his lectures, and especially his practice, saw that an expansion of this idea was practically the foundation of his whole treatment, and it was to a very great extent so of the leading men of that time. I think that we are coming back in some respects to a sounder basis.

DR. GRAHAM: Enough has already been said on this subject, but I should like to add a word of confirmation. Suggestion is something I am getting more confidence in every day for sleep and pain and constipation. I think we should give the patient something tangible at the same time, whether it be massage, electricity, water or medicine. I have had a chance to go a step further in the last few days. In my own family there was a case of psoriasis, and finally we got Dr. Hamilton Osgood for another purpose and the psoriasis disappeared at the same time. A patient was sent to me 2 weeks ago with numbness and stiffness in the fingers and who also had patches of psoriasis on the backs of the arms. I suggested that the psoriasis would go away. In less than 10 days it is disappearing decidedly and I hardly know what to think of it.

DR. G. C. SMITH: I presume you have all heard the story about the young lady living in one of the Back Bay hotels being troubled with insomnia, and one night, she being accustomed to sleep with her transom open, found it very difficult to get to sleep and wondered if it was open. Finding it was not, she immediately took a stick and opened it, and went to sleep at once. The next morning she reported this to the proprietor, and said it must be kept open constantly, because she must have the fresh air. He appraised her of the fact that there was no glass in the transom, and in reality she had been sleeping with an open transom all the time.

Dr. Taylor emphasized one or two points I am glad to have brought up prominently about the work being done at present in medical schools, not only with regard to that, but especially with regard to the fact of using suggestion in all departments of medicine. I saw a case quite recently, referred to me by a gentleman from Lowell, and in the letter that he sent me introductory to the case he remarked that he had thought a good deal of her trouble was imaginary. One trouble from which this patient suf-

fered was constipation, and 2 or 3 weeks before sending her to me he had given her a tablet which he said would relieve her, and that tablet, for want of some other placebo or the usual one of sugar of milk, was citrate of caffeine in one-half grain doses, and during the 2 weeks before coming to me that had been all that was necessary, while before, constipation had been a prominent symptom.

I was very glad to hear this subject discussed by Dr. Prince and others from the point of view of the education of children. That I am sure is a large field which will become more important in the future. Dr. Prince spoke of hay fever neurosis. During the past season 2 patients with hay fever have been referred to me by throat specialists as possible cases of neurosis, and both of them yielded readily to suggestive treatment.

I did not refer to hypnotism because, just at present, perhaps more harm can be done by talking about hypnotism in a mixed gathering of physicians than by leaving the subject entirely alone.

I am opposed to hypnotism unless it is practised by men who know what they are doing, and I think we have very few in this city who should ever hypnotize. I saw enough of it in Salpetriere and in Berlin to convince me that much more harm than good is done by it, and for the general practitioner to touch that matter seems to me a very great mistake.

DR. GEORGE BADGER reported

#### A CASE OF RAYNAUD'S DISEASE.<sup>2</sup>

DR. PUTNAM: In connection with Dr. Badger's very interesting case I would simply like to say it seems to me that one is not obliged to exclude arteriosclerosis, for example, because many of the symptoms we are in the habit of associating with that disease are not present. I think it is quite curious how the disease manifestations show themselves in one case almost exclusively in one direction, and in another case in another. Of course, there is something superadded which we call predisposition or special tendency. There are some cases where the principal symptom is a recurrent numbness of the extremities, hands, feet, without leading to any of these more serious signs of impaired circulation, although presumably related more or less intimately. Then there is another set of cases where asphyxia comes on and persists for years, and yet gangrene never occurs; and still another set, of which I have seen one striking example, where the persons exposed have a severe aching in the muscles which comes on with the slightest use and passes off with repose. It is certainly quite extraordinary how true these different diseases run; how a person who has a tendency to one retains that tendency, and exhibits his special set of symptoms, which may not pass into either of the others, similar to it. And yet the pathology of all of them is perhaps more or less the same, so far as we are able to define it.

DR. GRAHAM: This subject interests me very much, and I have recently had much to say about

<sup>2</sup> See page 112 of the Journal.

it which I will not now repeat. Probably the first recorded case of Raynaud's disease is in 2 Chron. xvi, 12, 13: "And Asa in the thirty and ninth year of his reign was diseased in his feet until his disease was exceeding great; yet in his disease he sought not to the Lord, but to the physicians. And Asa slept with his fathers and died in the one and fortieth year of his reign." Here we have a case in which the disease had lasted for several years in both feet. If it was not dry, symmetrical gangrene, what was it?

The last case of Raynaud's disease which I saw occurred in a very intelligent woman sent to me after Pott's fracture. About 18 weeks previously she had been thrown from a wagon. The shock and fright were great. I was surprised to find what a beautiful result she had, union perfect, motion of the joint three-fourths normal, and though she did well under massage, the patient continued to have very disagreeable feelings. At each visit when she came to me the toes looked like purple grapes, and the foot was very cold. When she went away the whole foot was warm. I learned from her that after she went to bed that the foot felt very uncomfortable, and the back of it was black, while the toes were white and cold; so there we had three symptoms: coldness, constriction and dilatation of the vessels at one and the same time. She disappeared for a time and I did not know what became of her. Today she returned and told me that for several days she had vomited every 2 or 3 hours. Coincident with this the foot was very much better and the mental depression gone. Probably this trouble has now attacked the vessels of the stomach, or the nerves which preside over them.

### Recent Literature.

*Smallpox in London.* A description of the beginnings of the present outbreak, with suggestions as to executive and administrative measures. Illustrated by a series of spotted maps. By J. F. J. SYKES, M.D., Medical Officer of Health of St. Pancras. London: P. S. King & Son. 1901.

The author of this brief pamphlet has given therein a clear and concise account of the epidemic of smallpox in London, which began in August last and is still in progress. Beginning with last June it appears that some of the earliest cases were associated with the collection of dirty linen at certain laundries, and that the sorters and other persons engaged in handling linen on its receipt at the laundry are especially liable to infection, and that some of the sources of this linen were cases of unrecognized smallpox among persons from other countries staying at hotels, where linen was sent to the laundries to be washed. For the 16 weeks following and including the first week in August the cases reported were as follows: 3, 5, 7, 22, 60, 27, 53, 37, 41, 44, 28, 48, 55, 173, 64 and 104.

Dr. Sykes suggests several preventive measures, as follows:

- (1) International notification of smallpox.
- (2) Instruction of vaccination officials as to suspicious rashes and ailments observed by them in the course of their duties.
- (3) The making of chickenpox a notifiable disease.
- (4) Vaccination should be thorough and efficient in every case, and a description of the result should form a part of the certificate.
- (5) Clinical examination should be provided in doubtful cases.
- (6) Health officers and superintendents of smallpox hospitals should be in direct communication with each other and should furnish each other with immediate information necessary for the protection of the public.

He also raises the question whether laundries should be notified of the existence of smallpox among their customers.

The series of spotted maps appended show the progress of smallpox in London from July to the middle of November. First the local outbreak in and about St. Pancras caused by an unrecognized case, followed by smaller groups from secondary foci, followed again by single cases more widely distributed still, the cyclical periods being well marked.

*The Surgical Treatment of Disfigurements and Deformities of the Face.* By JOHN B. ROBERTS, A.M., M.D., Professor of Surgery in the Philadelphia Polyclinic, Surgeon to the Methodist Hospital. Second edition, with a chapter on the Reconstruction of Syphilitic Noses. Illustrated with 62 figures. Philadelphia: The Philadelphia Medical Publishing Co. 1901.

This work is an abstract of the Muetter lectures, of the College of Physicians of Philadelphia, delivered by the author in 1900, under the title of "The Surgical Treatment of Congenital and Pathological Disfigurements of the Face." A brief review is given of the development of plastic surgery, followed by a rapid survey of the anatomy of the human face, in connection with the principles of plastic surgery. Enumeration of various facial disfigurements and deformities forms a long list, with a corresponding variety in methods of treatment. The multiplicity of procedures available has apparently compelled the presentation of general principles, rather than of detailed description of particular methods. Certain procedures described are original with the author. The author has approached his subject from the standpoint of surgery, and has omitted reference, in the chapters on the deformities of the nose, to methods of repair well known and practised among laryngologists. The work is valuable chiefly as a review of the principles of cosmetic surgery, and should be of more value to the surgeon than to the student.

DEATH OF HUGO W. VON ZIEMSEN.—The death of von Ziemsen is announced at the age of 79.

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**CALLS OF SYMPATHY ON THE SICK.**

FORTUNATELY physicians themselves are not often expected to make simple calls of sympathy on their sick friends. Their profession makes it a delicate matter. It is a wise doctor who can talk for several minutes with an invalid not his own patient without saying something which will cause the attending physician to undergo an unpleasant cross-examination. But if they do not make them, they are often able to see such calls or to witness their effects. The doctor's chief responsibility in regard to such calls consists in determining whether the friends of the patient may be admitted to see the invalid or not. This offers sometimes a somewhat serious problem, as the patient is as anxious, usually, to see his friends as the friends are to see the patient, while the doctor feels that the utmost quiet is called for. Various things may unite to form the doctor's opinion. If the dutiful daughter insists on telling the invalid parent that her old schoolmate has come all the way from home to see her and is so disappointed, it may be better to permit the call than to allow the patient to fret over the disappointment. A deaf person in a feeble condition may not be allowed to see visitors early, as the strain of listening is especially trying. It is almost impossible to properly discriminate as to the person to be admitted. For instance, a deaf and sensitive young woman who was isolated during an exhausting but not serious illness, because the effort of listening was quite beyond her strength, on convalescence was first permitted to see a friend whose voice was singularly clear, but such discrimination against a relative whose tones were thick and difficult to understand nearly precipitated a family quarrel. Doctors learn to be extremely careful about forbidding the visits of certain individuals while others are admitted, as

they thereby become involved in quarrels in which even those whom they try to shield take part against them. The doctor must be guided by his own common sense and not look for help from any existing volume on theory and practice.

The calls of clergymen are usually cheery and of good effect. The clergyman who just runs in on his way to church to see the member of his congregation whose face he will miss from her accustomed place is pretty sure to carry comfort, while the priest who starts to read a prayer for the sick and continues until he has exhausted all the forms provided by the church may leave a condition of exhaustion behind him which causes the doctor many an anxious hour. The attitude of the doctor will vary somewhat with his patient's creed. The Catholic priest must be admitted. He is equally entitled with the doctor to stand by the side of the dying, and what more loyal ally could the doctor wish. But even clergymen are sometimes exasperating. One can hardly believe such an incident as the following: A physician tells of a lady under his care who was kept alive with the utmost difficulty. The whole household might be described as holding its breath lest anything should occur to disturb the balance between life and death. The doorbell was clearly labeled with a request not to ring, and directions were given as to the course to be pursued by visitors. In spite of such directions the bell was rung at a late hour one night by a reverend gentleman who had come to see the lady who had been his parishioner many years before. Even after the critical situation was explained to him, he insisted on seeing her and desired also to introduce a stranger whom he had brought with him.

"I have just been to see a sick friend, and if it takes it out of you, as this call has taken it out of me, you earn your fees," was the exclamation of a genial gentleman as he entered the club of which he is an ornament, to the doctor who occupied an easy chair by the fire. He then explained that he was usually successful as a caller on the sick, but on this occasion he had found a friend to whose face he could bring no gleam of hope or interest in anything outside of himself, and on that single topic he resented conversation as an impertinence. The poor fellow who had made the call failed to regain his cheerfulness for full half an hour.

Patients themselves sometimes see the humor of the visits; and here is a placard found posted in a prominent place in the room of a young gentleman who was confined to his bed, but was able to receive such friends as chose to call. The invalid was the owner of a parrot, of infirm temper, of which he was very fond. The parrot greeted the attentions of strangers with most unearthly screams, to the annoyance of the patient, but his

visiting friends seemed possessed to talk to the bird. These are his suggestions for the visitation of the sick :

"Don't tease the bird; avoid all topics of an agitating nature; give no suggestions regarding the taking of medicine or nourishment. These are subjects to be decided by the intelligence of the doctor and the condition of the patient."

An interesting, almost a model, call was described somewhat as follows: The patient was a lady, somewhat of an invalid, and confined to bed in her room in a hotel by an acute and painful attack which made it necessary to limit visitors to very short interviews. One morning the door to her chamber was accidentally left open and there entered an elderly lady, an old but not specially intimate friend, beaming with smiles, saying: "I don't know as I ought to come in at all, but I did so want to see you. You look just as handsome as ever. No, thank you, I can't stay. Good-bye" — and off, leaving sunshine behind her.

In contrast with the above should be mentioned the visitor who burst into tears on her first sight of this same invalid, and explained it by saying: "I cannot help it. You are so changed, you know."

But if doctors do not make many calls of friendship on their sick friends they are sometimes privileged to receive them, and doubtless there is no doctor who has lain long on a sick bed who has not stored away in his memory a blessed remembrance of someone, perhaps least expected, who sat for a moment by his bedside and made things brighter, not for an hour, but for a lifetime.

#### TRUSTEES OF NEW YORK HOSPITALS.

As noted in another column, the plan of appointing trustees to have charge of the management of Bellevue and allied hospitals in New York City has finally been carried out by the appointment of a board of seven men. These men were appointed by Mayor Low from lists given him for that purpose by certain organizations specified in the charter, which in itself is a guarantee of the earnestness and probable efficiency of the board. Among the number chosen is one physician, Dr. J. W. Brannan, who has long been identified with the movement of introducing the trustee system into municipal hospital affairs. There is but one physician on the board, which, however, is quite sufficient to represent the medical interests of the institutions under its charge — a matter which should never be lost sight of in the mass of administrative details. It is a source of congratulation that Dr. Brannan has not only been appointed for the longest term, seven years, but also has been made chairman of the board.

The management of city institutions by unpaid trustees is no longer wholly in an experimental stage. The Boston City Hospital has for many years been under the jurisdiction of such a board of trustees, with the result that it has developed into an institution wholly free from the pettiness and tyranny of a political organization. More recently, the Long Island Hospital in Boston Harbor, corresponding to the city institutions for chronic disease in New York, has gone through a like experience, and now finds itself developing into a highly creditable institution, untrammelled by political favoritism. Other cities have had a more or less similar experience, and the time is no doubt not far distant, particularly if New York's experiment succeeds, when we may expect to see the great charitable institutions of our cities wholly independent of political control and changing administrations. Development unquestionably lies in this direction, but more than in many appointments it is incumbent upon the official who has the appointing power that he be circumspect and wise in his selections. The one way in which the system of unpaid boards can fail is through the appointment of inefficient or otherwise obnoxious persons to these positions of high responsibility.

#### A DOUBLE LOSS TO DENVER.

It is a peculiarly sad occurrence that has come to Denver in the death of two of her most distinguished physicians, Dr. J. T. Eskridge and Dr. Clayton Parkhill. A further element of sadness is lent by the fact that they died within a few hours of each other. Both had gone to Denver from the East, both had been medically educated in Philadelphia, and were connected with the same institutions in the city of their adoption. Dr. Eskridge, for many years, has been known and recognized as one of the leading neurologists of the West, if not of the entire country, and Dr. Parkhill was doing excellent work in his chosen field of surgery at the time of his death. Both men were in middle life and at the prime of their mental powers.

#### MEDICAL NOTES.

**INSURANCE OF SMALLPOX CASES.**—It is reported from London that considerable amounts are being insured with Lloyds in connection with the smallpox epidemic prevailing at several British ports. A premium of 2s 6d. % on recently vaccinated cases and 3s. 4d. % on those who have not been vaccinated since infancy is required.

**ELDERLY CENTENARIANS.**—A despatch from Athens records the death at Khuti, Albania, of Ismail Hudjo, said to have been the oldest man

in the world. It is said that he was 160 years old. He leaves 200 descendants. Mrs. Ann Taylor, one of the historical characters of the city of St. Joseph, Mo., died there recently aged 110 years. For more than a century she had been addicted to the use of tobacco and liquor.

**SCARLET FEVER AND SMALLPOX IN CHICAGO.**—Scarlet fever is reported as very prevalent in Chicago. Eight cases of smallpox were reported during the week preceding the last report of the Board of Health, which is just at hand.

**HOSPITAL FOR TUBERCULOSIS AT HAVANA.**—It is reported that General Leonard Wood has appropriated about \$8,000 for the establishment of a hospital for tuberculous patients at Arroyo Apolo.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Jan. 29, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 55, scarlatina 26, measles 139, typhoid fever 18, smallpox 50.

**WEST END NURSERY.**—At the recent annual meeting of the corporation of the West End Nursery and Infants' Hospital, the following-named officers were elected for the ensuing year: President, Clarence John Blake, M.D.; Secretary, Wm. Rotch; Treasurer, Nelson S. Bartlett; Directors, Frederick B. Allen, Oliver Ames, J. Arthur Beebe, George A. Draper, Charles E. Inches, Mortimer B. Mason and T. M. Rotch, M.D. During the past year 287 sick babies were admitted to the hospital and the total number of visits to the Out-Patient Department was 12,066.

**MILTON (MASS.) WATER SUPPLY.**—The State Board of Health has reported relative to the water supply of Milton, which has been held responsible for numerous cases of lead poisoning. The board finds that the water contains an excess of carbonic acid, which acts on lead pipes, and especially on new lead pipes, producing the poisonous carbonate. The water is harmless unless conveyed through lead pipes.

**SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.**—At the next meeting of the Surgical Section of the Suffolk District Medical Society, Dr. Wm. J. Mayo of Rochester, Minn., will present a paper on "Problems relating to the Surgery of the Stomach." Dr. Mayo has had a wide experience in this increasingly important branch of surgical work.

**PAWTUCKET MEDICAL SOCIETY.**—At its annual meeting in January the Pawtucket Medical Society of Rhode Island elected the following officers: President, W. H. Heimer, M.D.; Vice

President, T. H. McNally, M.D.; Secretary, Joseph E. Duxbury, M.D.; Treasurer, Ray Woodhead, M.D.

**ENLARGEMENT OF SALEM HOSPITAL.**—An enlargement of this hospital is said to be under consideration by the trustees. The plans are said to call for a number of one-story wards connected by a corridor, each complete in itself, and each with a sun parlor; also a two-story private ward.

#### NEW YORK.

**INVESTIGATION OF ANTITOXIN AND VACCINE VIRUS.**—At the last meeting of the New York County Medical Association the Committee on Public Health, of which Dr. N. E. Brill is chairman, made an elaborate report of its investigation into the antitoxin and vaccine virus products of the laboratories of the Health Department. The conclusion reached was that it was unanimously agreed that the character, professional qualifications and standing of the men engaged in the supervision and control of the manufacture of these products, none other than skilled help carrying out the details, are more than sufficient guarantee as to the quality of the curative sera and vaccine virus. These men represent the highest professional and scientific skill in these departments to be found in the city, and the methods which are used are beyond criticism. The committee stated that they had been unable to find any recorded cases of tetanus in New York following the use of antitoxin or vaccine virus, and it was their opinion that these products of the laboratories of the Department of Health are absolutely safe. They found that the horses selected for antitoxin production were under 9 years of age and perfectly healthy, and were stabled in a special building on East 57th Street. Until recently about two-thirds of them have been kept in the basement, and the remainder on the first floor, but at the present time all the horses are kept upstairs. All are exercised 1 hour daily, except in very stormy weather. Before treatment the horses are systematically injected with tetanus antitoxin, in order to prevent the possibility of their contracting tetanus, and since this plan was adopted, 5 years ago, no horse has contracted the disease. As to vaccine virus, the committee's investigations showed that the calves selected, the precautions for cleanliness employed, the care given to the stable, and the handling of the virus left nothing to be desired.

**LOOMIS LABORATORY.**—The act of incorporation of the Loomis Laboratory, founded and equipped by Col. O. S. Payne, contains a provision that under certain circumstances the trustees of the institution have power to transfer the property to the New York University. The uni-

versity recently brought an action to have a trust declared for its benefit in the real estate, the legal title to which is in the laboratory. It was claimed that the donor intended the gift to be for the exclusive benefit of the university, and that the late Dr. Alfred L. Loomis held the title upon a trust annexed to it; that the property should be transferred to the Board of Trustees to hold in trust for the use of the faculty and students of the university, and that the laboratory should be used to increase the teaching facilities of the medical department of the university. Colonel Payne, who was abroad at the date of the incorporation, when called as a witness on the trial of the action, testified that his purpose in giving the moneys was to build a laboratory for original research and elementary teaching in scientific medicine, and that his desire was that it should be entirely independent. On Jan. 24 a dismissal of the action was unanimously affirmed by the Appellate Division of the Supreme Court, which held that the proof adduced failed to establish the allegations of the complaint. Justice Patterson, in giving the opinion of the Court, stated: "That the laboratory was for a time used in connection with the instruction given in the Medical Department of the New York University, with the consent of the trustees of the defendant, does not establish the trust, nor does the provision of the act incorporating the defendant, which authorizes the trustees in their discretion to convey to the plaintiff the property in fee, establish that trust." At the present time the Loomis Laboratory is operated under the auspices of the Cornell University Medical College, the buildings for which, it will be remembered, were also donated by Colonel Payne.

**BOARDS OF TRUSTEES FOR CITY HOSPITALS.**—Under the amended charter of the city the jurisdiction over Bellevue, Harlem, Gouverneur, Fordham and the Emergency hospitals is taken away from the Department of Public Charities and lodged in the hands of a board of trustees, to be appointed by the mayor, and to serve without salary. Mayor Low has now announced the members of this hospital board, who are selected from a list of names presented to him by the United Hebrew Charities of the City of New York, the Society of St. Vincent de Paul, and the New York Association for Improving the Condition of the Poor. The only one of the number who is a physician is Dr. John W. Brannan, who, when the board organized, was elected president. Dr. Brannan has for a number of years been a visiting physician at Bellevue and the Willard Parker hospitals. Speaking of the new departure, Mr. Low said, in announcing the appointments: "The purpose of it, undoubtedly, is to remove the ad-

ministration of these hospitals, as far as possible, from the baleful influence of politics in the baser sense of that word. But it is not, in any sense, to be interpreted as indicating that the city's interest in the management of these hospitals is to be lessened. On the contrary, the change itself is intended to be significant of the fact that the city's sense of responsibility for the care that it gives to its own sick and wounded has grown, and that it will hold you and your successors to a strict account for the manner in which you discharge your trust."

**NEW MEDICAL ADVISORY BOARD.**—The new Medical Advisory Board of the Health Department, composed of 11 prominent physicians, held its first meeting on Jan. 20, and organized by electing Dr. Edward G. Janeway chairman, and Dr. T. Mitchell Prudden secretary. The following resolution was adopted and transmitted to the city officials: "In the opinion of the Medical Advisory Board the condition of affairs in the Health Department of this city is such as to require the immediate appropriation of a sum of money considered sufficient by the Health Department to meet the present emergency in the matter of disinfection and for increased vaccination facilities made urgent by the apparently impending fresh outbreak of smallpox. In urging the necessity of this immediate emergency appropriation, the Advisory Board would call attention at this time to the great inadequacy in the general facilities and plant of the Health Department, which, when the situation has been fully surveyed and the plans shall be formulated, will require a large appropriation in order to meet the necessities in the management of communicable and contagious diseases in each of the boroughs of Greater New York."

**APPROPRIATION BY BOARD OF ESTIMATE AND APPORTIONMENT.**—At a meeting of the Board of Estimate and Apportionment held Jan. 22, the immediate appropriation asked for was granted. On the same day the Board of Health held a meeting at which 100 additional vaccinators were appointed, at a monthly salary of \$100, the appointees being all taken from the list of medical school inspectors, the salary of which position is \$30 a month. The board also determined to provide a disinfecting plant in each of the 5 boroughs, at a cost of \$5,000 each, and to build an isolation hospital for contagious diseases on Staten Island.

**SMALLPOX.**—The discovery of 8 cases of smallpox in Flatbush and East New York lead to the closing on Jan. 20 of 2 public schools in which there was reason to suppose that some of the children had been exposed to the disease, and since then 2 other schools in the borough of Brooklyn



have been temporarily closed on account of smallpox. It is claimed that the cutting down of the force of diagnosticians in the Local Health Department from 4 to 2 since the first of the year has crippled the efficiency of the department in handling smallpox cases promptly, and some criticism has been expressed in regard to this method of retrenchment.

**NEW YORK TRAINING-SCHOOL FOR NURSES.**—The twenty-eighth annual commencement of the New York Training-School for Nurses, attached to Bellevue Hospital, was held on Jan. 14, the diplomas being awarded by the new commissioner of charities, Mr. Folks. There were 24 graduates. The class recently numbered 25, but 1 of its members, Miss Blanche Thomas, died on Dec. 4 from typhoid fever, contracted while on duty in the wards of Bellevue.

**A NEW MANHATTAN MATERNITY HOSPITAL.**—A plot of land, 100 by 100 feet, has been purchased for \$33,000 for the new Manhattan Maternity Hospital and Dispensary on 60th Street, east of First Avenue. The proposed building, work on which will shortly be commenced, will not be a large one, as it is intended that much of the work of the institution shall be carried on in the homes of the poor. It is quite probable that a training-school for nurses will be erected on part of the plot.

**REQUESTS TO HOSPITALS.**—By the will of the late Theodore G. Weil \$2,000 is left to the Mount Sinai Hospital for a perpetual bed, \$1,000 to St. Francis Hospital, and \$500 each to the St. John's Guild Floating Hospital, the New York Skin and Cancer Hospital and the Montefiore Hospital for chronic diseases.

#### ARMY NOTES FROM THE PHILIPPINES.

**"SURRA," OR EQUINE RELAPSING FEVER.**—The presence of this disease in the Islands was discovered Oct. 16 of this year by Capt. Allen Smith, assistant surgeon, U. S. Army, surgeon in charge of the Army Pathological Laboratory, and Dr. J. J. Kinyoun, surgeon Marine Hospital Service. Smith and Kinyoun, examining the blood of a sick horse, found an actively motile body which, on investigation, proved to be apparently identical with the parasite found by Evans in India and Burma in 1881 in the blood of horses, mules and camels ill with what the natives called "surra," which means "rotten." This parasite, the *trypanosoma Evansi*, occurs in enormous numbers in the blood of animals ill with the disease. This disease has never been recognized, to our knowledge, before in the Philippine Islands. Large numbers of American horses and mules as well as

native ponies have died during the past 6 months. In some provinces there are Pueblos without a single pony. In the main corral here in Manila some 200 and more horses and mules have died from a "wasting" disease during the past 4 months. This disease was generally diagnosed "glanders," and hundreds of animals were killed, until General Chaffee stopped it by a general order. Investigation has progressed to such a point that it is possible to state positively that this fatal epidemic among horses, mules and ponies is *not* glanders but "surra." The blood of nearly a hundred horses and mules, most of whom were diagnosed as having glanders, was examined. But little glanders was found in the Manila corrals; four-fifths of the deaths among government horses and mules during the past 3 months have been from "surra." How the disease is disseminated is not known, but it has been induced in well animals—horse and monkey—by the subcutaneous injections of the blood of a horse ill with surra whose blood contained the *trypanosoma*. Treatment seems of little avail; quinin and methylene blue do not seem to affect the course of the disease. Work is now being done especially in the direction of the mode of transmission. The evidence points to transmission by some sucking insect.

**ARMY MEDICAL LYCEUM OF MANILA.**—In November Col. Pope, chief surgeon of the division, established the lyceum, consisting of all the medical officers in and near Manila. Weekly meetings (every Tuesday evening) are held. Every medical officer below the rank of lieutenant colonel is required to attend and to submit a paper, unless excused by the chief surgeon. One paper or several short communications are read and discussed at each meeting. The first meeting took place on the evening of Dec. 2, at which Dr. J. J. Curry, captain and assistant surgeon, U. S. Volunteers, presented the first paper on "Black Water Fever," with a report of 2 fatal cases occurring in soldiers. The next paper to be read is one on "'Surra,' or Equine Relapsing Fever," by Capt. Allen Smith, assistant surgeon, U. S. Army. Notification of papers in process of preparation was given by members of the lyceum on the following subjects: "Treatment of Dysentery," "Abscess of the Liver," "Intestinal Parasites," "Report of Operative Cases of Abscess of Liver," "Amebic Dysentery," etc. The two cases of black water fever reported by Dr. Curry were in men who had been on the island, one 2 years and 8 months, one 2 years and 3 months. Both had previous history of chills and fever 10 and 12 months before present illness; both came in with marked general icterus and urinating "black" water. In each case the attack came on suddenly—one the day of admission, the other the day before admission to hospital. The first had had 24 gr. of quini-

in, the other no quinin. In the first case 10 gr. of quinin hydrochlorate subcutaneously every hour for 4 doses; in the second, no quinin, the treatment being symptomatic. Blood examinations in both cases negative for malarial parasites. Case I died in 24 hours with practical suppression of urine, post mortem showing intense congestion of kidneys. Case II lived 4 days, dying in uremic coma. Autopsy showed that the patient had an old subacute (diffuse) nephritis, on which an acute nephritis had been implanted. At autopsy no evidence of old or fresh malaria was found in either case. Examination of splenic pulp and of blood from heart and various organs negative for malarial parasites. No pigmentation of spleen or other organs. These were apparently both cases of nonmalarial, black water or hemoglobinuric fever. Quinin appeared to be very harmful. In Case I, in which quinin was given, the man became delirious after the first injection, going from bad to worse, and dying in 24 hours. In Case II the man at first promised well. It was thought he would weather the attack, but his old damaged kidneys were too much of an obstacle to overcome.

ARMY PATHOLOGICAL LABORATORY.—Every opportunity has been offered by Surgeon-General Sternberg for the prosecution of pathological work at Manila. The laboratory compares in equipment with the best in the States, and has an excellent outfit for microphotography.

### Correspondence.

#### "AUSCULTATION OF THE KNEE-JOINT."

Boston, Jan. 22, 1902.

MR. EDITOR: The paper with the above title by Dr. Blodgett, published in the *Journal*, Jan. 16, 1902, is very interesting. From an orthopedic point of view I doubt if the method will ever amount to much. For several years I have occasionally auscultated the knee-joint, and, except in cases where the presumably roughened joint-lining gave a *fremitus* feeling to the touch, have never been able to detect anything whatever by the method, of diagnostic value. Dr. Blodgett suggests that auscultation can be applied to any of the larger joints, and cites "a case of supposed complete ankylosis of the hip, in which detection of the joint sounds, transmitted by the trochanter, ruled out firm bony union, and suggested extra articular causes for the ankylosis."

Curiously enough, I find described another method to decide between true and false ankylosis, the method of auscultatory percussion by H. I. Bowditch in *The Young Stethoscopist*, published 54 years ago. Let me quote Bowditch: "It is hoped, likewise, that by auscultatory percussion we may be able to distinguish between true and false ankylosis. One case only had come under the notice of the inventors of the method at the time (1840) they (Camman and Clark) wrote on the subject. In this case there was supposed to be a perfect bony union at the hip-joint, and the sound of percussion was transmitted from the condyle of the femur to the pelvis, more distinctly by the diseased than by the healthy limb." In the question of ankylosis of the

hip-joint I believe a careful use of both auscultation and auscultatory percussion will be of considerable diagnostic value.

Very truly yours,

EDWARD A. TRACY, M.D.

#### TETANUS FOLLOWING VACCINATION.

MEDICO-CHIRURGICAL COLLEGE,  
LABORATORIES OF PATHOLOGY AND BACTERIOLOGY.

PHILADELPHIA, PA., Jan. 21, 1902.

MR. EDITOR: I shall be greatly obliged to any of your readers who may have had or know of cases of tetanus following vaccination if they will communicate with me concerning them. I am engaged in a critical analysis of such cases in the hope of determining their etiology, and desire to secure all the data possible.

Respectfully yours,

JOSEPH MCFARLAND, M.D.,  
Professor of Pathology and Bacteriology.

#### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 18, 1902.

CITIES.	Population* Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Diarrheal diseases.
New York . .	3,665,352	1,442	500	22.33	18.16	3.80	.76	2.01
Chicago . .	1,852,828	—	—	—	—	—	—	—
Philadelphia .	1,349,624	502	140	18.40	19.20	3.80	1.00	.20
St. Louis . .	603,717	—	—	—	—	—	—	—
Baltimore . .	525,330	207	59	21.25	17.38	3.38	1.92	.38
Cleveland . .	411,826	—	—	—	—	—	—	—
Buffalo . .	375,742	—	—	—	—	—	—	—
Pittsburg . .	341,401	146	31	25.34	19.18	2.05	8.22	.68
Cincinnati . .	332,032	—	—	—	—	—	—	—
Milwaukee . .	304,476	—	—	—	—	—	—	—
Washington .	289,637	—	—	—	—	—	—	—
Providence . .	185,870	53	12	18.86	15.09	5.66	1.87	1.87
Boston . .	588,730	225	60	18.65	17.32	2.22	.88	.44
Worcester . .	127,337	32	9	15.62	21.87	—	—	—
Fall River . .	111,472	22	7	22.72	9.09	—	—	4.54
Lowell . .	99,074	36	14	30.55	19.44	18.88	2.77	—
Cambridge . .	96,434	24	6	20.83	8.33	4.16	—	—
Lynn . .	71,144	20	1	10.00	10.00	—	—	5.00
Lawrence . .	67,275	17	9	5.88	29.40	—	—	—
Springfield .	66,854	19	3	10.52	15.78	—	5.26	—
Somerville . .	65,882	17	7	23.52	35.28	5.88	—	—
New Bedford .	65,074	21	4	19.04	9.52	—	—	—
Holyoke . .	48,005	14	4	35.70	7.14	7.14	—	—
Brockton . .	43,208	9	2	—	22.22	—	—	—
Haverhill . .	40,392	13	3	28.10	7.70	7.70	—	—
Salem . .	36,657	15	5	20.00	13.33	13.33	—	—
Newton . .	35,336	6	1	16.67	—	—	—	—
Malden . .	35,390	10	3	—	—	—	—	—
Chelsea . .	35,264	8	—	—	—	—	—	—
Fitchburg . .	33,848	10	5	—	—	—	—	—
Taunton . .	32,759	12	2	—	—	—	—	—
Everett . .	27,114	6	1	—	—	—	—	—
North Adams .	26,583	7	—	—	—	—	—	—
Gloucester . .	26,121	9	3	—	—	—	—	—
Quincy . .	25,307	7	5	—	—	—	—	—
Waltham . .	24,612	4	1	—	—	—	—	—
Pittsfield . .	22,311	4	1	—	—	—	—	—
Brookline . .	21,679	5	1	—	—	—	—	—
Chicopee . .	20,390	4	3	—	—	—	—	—
Medford . .	20,014	8	4	—	—	—	—	—
Newburyport .	14,478	3	1	—	—	—	—	—
Melrose . .	13,384	1	1	—	—	—	—	—

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 2,963; under five years of age, 914; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 625; acute lung diseases 521; consumption 308; scarlet

fever 30, erysipelas 13, typhoid fever 40, whooping cough 17, cerebrospinal meningitis 8, smallpox 25, measles 32, diarrheal diseases 36.

From whooping cough, New York 12, Philadelphia 1, Baltimore 2, Boston 2. From cerebrospinal meningitis, New York 3, Baltimore 1, Pittsburg 1, Boston, New Bedford and Somerville 1 each. From scarlet fever, New York 23, Philadelphia 2, Baltimore 2, Pittsburg 1, Boston 1, Waltham 1. From measles, New York 25, Philadelphia 2, Pittsburg 2, Boston 2, Lowell 1. From erysipelas, New York 7, Philadelphia 4, Baltimore 1, Pittsburg 1. From smallpox, New York 5, Philadelphia 16, Boston 3, Weymouth 1.


Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-five great towns of England and Wales, with an estimated population of 14,800,427, for the week ending Jan. 4, the death-rate was 20.1. Deaths reported 5,707; acute diseases of the respiratory organs (London) 452, whooping cough 80, diphtheria 83, measles 157, smallpox 30, scarlet fever 66.

The death-rate ranged from 5.6 in Handsworth to 28.1 in Tyne-mouth; London 20.6, West Ham 20.1, Croydon 17.8, Brighton 24.3, Portsmouth 19.5, Southampton 24.2, Bristol 19.3, Birmingham 24.1, Leicester 19.3, Nottingham 18.7, Birkenhead 13.5, Liverpool 24.1, Manchester 21.9, Salford 20.5, Bradford 17.4, Leeds 23.0, Sheffield 19.8, Hull 15.9, Newcastle-on-Tyne 23.6, Cardiff 20.7.

#### METEOROLOGICAL RECORD

For the week ending Jan. 18, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.			
S...12	29.24	26	34	17	97	79	88	S	W	11	12	N.	C.	.53
M...13	29.60	20	26	15	78	77	78	W	W	15	12	F.	C.	
T...14	30.06	20	27	14	81	72	76	W	W	9	8	C.	C.	
W...15	29.98	33	41	25	81	72	76	S	W	5	12	C.	C.	
T...16	29.83	35	44	26	82	69	76	W	W	7	6	C.	O.	
F...17	29.93	26	34	17	66	71	68	N	W	12	12	F.	C.	
S...18	30.06	30	42	17	64	67	66	S	W	8	15	C.	O.	
	29.81		35	19		75								.53

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall.  
☞ Mean for week.

#### OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 23, 1902.

BROOKS, S. D., surgeon. To proceed to Bath, Me., for special temporary duty. Jan. 20, 1902.

MAGRUDER, G. M., surgeon. Granted 30 days' leave of absence on account of sickness from Jan. 22. Jan. 20, 1902.

THOMAS, A. R., passed assistant surgeon. To proceed to Liverpool, Eng., for special temporary duty. Jan. 23, 1902.

ANDERSON, J. F., assistant surgeon. Upon expiration of leave of absence to proceed to Washington, D. C., and report to the Director of the Hygienic Laboratory for duty. Jan. 23, 1902.

GARCIA, FELIX, acting assistant surgeon. Granted leave of absence for 30 days from Jan. 25. Jan. 22, 1902.

ALLEN, G. C., hospital steward. Granted leave of absence for 2 days from Jan. 27. Jan. 23, 1902.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JAN. 25, 1902.

D. O. LEWIS, surgeon. Ordered to the "Pensacola."  
J. E. PAGE, passed assistant surgeon. Detached from the "Pensacola," and ordered to be ready for sea duty.

W. K. VAN REYFEN, rear admiral, surgeon-general of the Navy, retired from active service Jan. 25, upon his own application, after 40 years' service, with the rank and three-fourths the sea pay of the next higher grade.

W. A. McCLURG, medical inspector. Ordered to the "Olympia" Jan. 25.

E. O. HUNTINGTON, passed assistant surgeon. Commissioned passed assistant surgeon from May 24, 1901.

J. B. DENNIS, passed assistant surgeon. Commissioned passed assistant surgeon from May 25, 1901.

E. G. PARKER, assistant surgeon. Ordered to the "Pensacola."

U. R. WEBB, assistant surgeon. Detached from the "Pensacola" and ordered to the Asiatic Station, sailing from San Francisco, Feb. 7.

#### SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The regular meeting of the society will be held at Sprague Hall Medical Library, 8 The Fenway, on Monday, Feb. 3, at 8.15 P.M. The committee appointed to consider the time of incubation, the duration of the common contagious diseases and the time of isolation necessary for the proper protection of families and schools, will report. Committee: Drs. Durgin, Cutler, McCollom, Morse and R. C. Cabot. Discussion by Dr. H. P. Walcott, Dr. Theobald Smith, Dr. T. M. Rotch, Dr. J. P. Oliver and others.

A. K. STONE, M.D., Secretary,  
543 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY. SURGICAL SECTION.—The next meeting of the section will be held in Sprague Hall, Medical Library, 8 The Fenway, Wednesday, Feb. 5, at 8.15 P.M. Dr. H. H. Germain will read a paper on "Thrombosis of the Cavernous Sinus." Dr. E. W. Dwight will open the discussion. Dr. William J. Mayo of Rochester, Minn., will present a paper on "Problems Relating to the Surgery of the Stomach." Discussion by Drs. J. C. Warren, M. H. Richardson, S. J. Mixer, J. C. Muro, and F. B. Lund.

F. S. WATSON, M.D., Chairman,  
F. B. LUND, M.D., Secretary,  
529 Beacon Street.

#### APPOINTMENT.

DR. PHILIP HAMMOND of Boston has been appointed to the Consulting Staff of the Hale Hospital in Haverhill, Mass.

#### RECENT DEATHS.

DR. CHARLES GEORGE SPROULL of New York died of appendicitis at Dr. William T. Bull's private hospital on Jan. 25, at the age of 34. He was a native of Philadelphia and a graduate of Princeton. He was graduated from the medical department of the New York University in 1893, and afterwards served as an interne at Bellevue Hospital.

DR. SAMUEL SEABURY JONES, a prominent New York practitioner, died from pneumonia on Jan. 21, at the age of 55. He was born in Oyster Bay, Long Island, N. Y., and was graduated from the arts and medical departments of the University of the City of New York, receiving the degree of M.D. in 1869.

DR. CLAYTON PARKHILL of Denver died there of Bright's disease on Jan. 16 at the age of 41. He graduated from Jefferson Medical College in 1883. He was professor of surgery at the Gross Medical College in Denver, and was a prominent member of many local, state and national medical societies. His exceptional ability as a surgeon had come to be generally recognized.

DR. J. T. ESKRIDGE of Denver died at his home in that city of cerebral hemorrhage in the course of Bright's disease on Jan. 16, at the age of 55. He was born in Sussex County, Delaware, and was a graduate of Jefferson Medical College in 1875. For a time he was post-graduate instructor in nervous diseases in that college, but removed to Denver in 1884. He was a member of many national and local medical societies, and held important teaching positions in Denver. He had attained a wide reputation as a neurologist.

#### BOOKS AND PAMPHLETS RECEIVED.

Gynecological Pathology. A Manual of Microscopic Technique and Diagnosis in Gynecological Practice for Students and Physicians. By Dr. Carl Abel. Translated and edited by Samuel Wyllis Bandler, M.D., with a chapter on the Embryology of the Female Genitalia and the Pathological Growths Developing from Embryonal Structures. Illustrated. New York: Wm. Wood & Co. 1901.

## Original Articles.

THE PROPOSED BOSTON ACADEMY OF MEDICINE.<sup>1</sup>

BY J. G. MUMFORD, M.D., BOSTON.

SINCE suggesting to our secretary the title of this paper, I have been so impressed with the extent and importance of the subject that I am led to treat it rather more fully than at first I had intended, though in general terms, even so.

No step in advance, when the proposition of a rational mind, is ever a freak or erratically at variance with popular undercurrent of thought; and so, last winter, when various gentlemen suggested the establishment of a Boston academy of medicine, the idea met with instant favor and seemed to embody the wishes of a considerable majority of our profession in this city.

Later, however, when an attempt came practically to be made to formulate a working plan, old prejudices, vested interests, sentiment and the normal minority which is always in opposition so blocked the way that up to this time little or no advance has been made.

The writer was one of various committees appointed to forward the project, and was constantly impressed with the indifference of men and the lack of interest in, and grasp of, the situation. Permit me, therefore, briefly, and perhaps incoherently, to set down my present views of the subject, evolved from considerable reflection and talks with many men.

It has come home to all of us, during the last 10 years, that interest in medical meetings and other methods of exploiting medical matters has been lamentably on the wane. Attendance at meetings has constantly decreased, the papers presented have been frequent and perfunctory—rarely final; the reading of medical journals has become a dreary and almost impossible task; a wide general grasp of medical progress has become constantly more difficult to the average physician. After a fashion, groups of men have attempted to remedy these evils by associating themselves together in small private clubs, offering that mental and social pabulum which the large societies fail to furnish. Perhaps this condition is the logical evolution and solution of the situation; but a review of the list of new organizations of the last 50 years would be discouraging, though instructive.

Medical societies, in this country at least, are but little more than 100 years old, and medical journals are still more recent. In the early days the purposes and conditions of societies were very different from what they have since become.

One hundred years ago all physicians were practitioners; they lived in scattered communities; even in the small cities of the day, each physician had his own circle and following. They met together rarely, and in their meetings discussed cases and exchanged views. The meet-

ings were chiefly given up to professional gossip; formal papers were not common. This state of things existed almost down to our own day, the only marked change in the program being an increasing formality but with little increase in the seriousness or exactness of the discussion.

Now, in the last 20 years we have seen not only an enormous addition to the number of societies, but a proportionate increase in the number of medical publications. Whereas, formerly, papers and "remarks" found little circulation beyond the immediate auditors, today they are all multitudinous, almost uncensored, *shoveled* into the press; and a devoted professional public is required to absorb the undigested mass. Such is the state of clinical essays, medical addresses and extemporaneous remarks.

There is another type of work which, with the progress of exact research, has come to be called "scientific," and in all its details is being presented to us in an increasing abundance. I mean the reports of experimental medicine and laboratory research.

This work is largely, in its methods of presentation, divorced from clinical reports; and the essential interdependence of the one upon the other is rarely immediately evident.

So it comes about that we have among us three distinct types of societies: the gregarious unsystematized meetings, the small special gatherings, and the so-called scientific meetings; and these meetings are constantly multiplied. The wonder is, not that such a situation should have become uninteresting, distasteful, irksome and dreary, but that it should so long have persisted. We have waited many years for the conditions to rectify themselves, but there has come no improvement. On the other hand, societies have multiplied. Their calls upon our time are more constant, while their attractions have become less and less conspicuous.

So the feeling began to intrude itself years ago that our venerable methods were not meeting modern conditions, and that some plan was needed that might economize our time and energy, add interest to our gatherings, clear away the cobwebs that cloak our literature, and rescue precious material from the literary dustbins. No such satisfactory plan has ever yet been evolved. Various communities have what they call academies,—an all-embracing term, which may mean little or nothing; but those academies are mostly ancient now, their purposes are somewhat obscure, and their functions differ little from that of the societies we see here in our midst.

The problem presented to our languid enthusiasm, then, is this: We have several hundred physicians in our community, the majority of them well-equipped, zealous men. They divide among them the various specialties, follow many paths of inquiry, striving always to advance themselves and their calling and to live up to our best traditions. In the development of specialism, which reached its height some years ago, these men of ours began to centre their attention in nar-

<sup>1</sup> Read before the Warren Club, Nov. 21, 1901.

row lines, to lose interest in the work of others as well as in the great and broad advance in our art as a whole. They ceased to attend meetings of the general societies; they concentrated their interests in the little round of their little clan; consciously or unconsciously, they drew apart from their fellows, until, to the curious observer, it has sometimes appeared that, in the not distant past, the old word "physician" had come almost to be a term of reproach among many, and that as men grew more sceptical of each other's unfamiliar work, the broadly embracing bond was gradually melting away.

As men grouped themselves more closely with their kind, their progress, purposes, interests and results became less familiar to the general profession. It came about that they ceased to use a language always comprehensible, save to the very elect. Not that a multitude of special technical terms is an offense, but the structure and arguments of papers introduced for general professional reading became blind and dreary. Such was the state of affairs not many years ago; but as such it could not last. Already a reaction has begun,—we know that we are all interdependent, the one on the other; we are beginning to feel that just as a knowledge of literature, of art, of the matters that interest men mostly is essential to proper and comfortable living, and aids towards success in one's own special work, so most of all is it incumbent on us to keep in some touch, feeble though it be, with the work and achievements of our allied craftsmen in other branches of our art.

I need scarcely say to you here how futile to the open mind is the common talk, spoken volubly within this very year, of those who would persuade us that increasing specialism, increasing differentiation are good and essential. We must indeed know one thing well; but our purpose fails, perfection becomes impossible, if we wilfully shut our eyes to the rest of the world, and refuse to acknowledge relationships and perspectives. Such is, and long has been, the premise of our situation, and the question is this: In what way may the most important of these numerous facts, the special knowledge of the few, be brought to the attention of the many whom the facts more than indirectly concern? As cases in point, consider such familiar ones as these: Every practitioner, be he surgeon or some other, should know the bearing on general health of adenoids in the nasopharynx. The rhinologists finally told us what is the answer, but feebly, haltingly, confusing the main question with a multitude of names, with matters of technique and tales of instruments.

The relation of hemorrhoids to chronic constipation is of great importance, but what interest has the general practitioner in the minute anatomy of the anus and in the so-called Whitehead operation?

Such simple examples could be multiplied *ad infinitum*; but all go to show this: That most men, outside of their own immediate competitive concerns, have had little interest in popularizing

their knowledge, and many, it must be confessed, have been too indifferent to put their knowledge into luminous language.

We have special societies, special publications, special clinics in abundance, but we must develop the machinery which may place in touch, for the average man, the great complexity of wheels turning within this factory of medical science. Now it has been with such thoughts as these in mind that the promoters of an academy of medicine have emerged from their hitherto futile gatherings.

Let us look for a moment at our various societies as they stand today. Setting aside the numerous small special clubs, we have first, the Boston Medical Library Association—a nucleus and center of medical work, as it were. This has a membership of about 410 men, and is growing constantly (June, 1901). Next, there is the Medical Improvement Society,—the exemplar of that ancient type which for three generations did so useful a work in our midst;—there are 232 members. The Boston Society of Medical Sciences, young, vigorous, with a positive immediate future, comes next, with 227 members. Then there are the various sections of the Suffolk District Medical Society, with a nominal membership of 586.

It were idle and futile to detail the work presented by these various bodies, but the summary of it is this: That the library is a vital, constant organism; the "Medical Sciences" is full of a teeming energy and, for the present, at least, fills an important place,—in a sense, indeed, it is unique,—while the Improvement Society and the sections, conscious of their traditions and directed by hard-working, devoted officers, are keeping up a frantic struggle against impossible conditions, with a steady decline in attendance and a fairly constant futility of discussion.

In the talk, held hitherto, regarding the organizing of an academy, two possible plans for its formation have been suggested: (1) The abolition of pre-existing societies, and the formation of an academy *de novo*; (2) the federation of the existing societies, whereby they might be governed by a central congress or council.

I must admit that for a time I advocated the federation scheme, but as I have attempted to plan it out it has seemed to me increasingly difficult. I doubt if the divers interests could be assimilated, and I have come to believe that membership in an academy should give equal privileges to all,—a condition impossible if some members belong to one of the old societies and some do not. Indeed, I have come to believe that a complete revolution in our societies is necessary if a successful working plan for an academy of medicine is to be adopted.

Briefly, then, to recapitulate our purposes: Let all the present small specialists clubs and societies, including the "sciences,"—vital, popular, successful as they are,—remain to do their appointed work, but let us take the old, decadent, moribund organizations, break them up, shake them together, and ask them to provide us, for

popular consumption, with the cream of the work produced by the specialized clubs; let that work be so presented to us that he who runs may read, and let its bearing on general medicine and its value to the general practitioner be made instant and obvious.

Such being our proposition, let us give ourselves to its solution. Here there must be compromise, doubtless, for we are concerned with many men and many minds. Our first conception, though, is one of some sort of council or strong, active, controlling body,—all specialties should be represented in it,—but most of all, it should contain representative practitioners of general medicine and general surgery.

We have lately learned the advantage, in clinical teaching, of combining together, in one exercise, the physician and the surgeon. That gives the key to the thought that should run through the programs of our new organization. Frequently this council should meet, should select subjects and should learn from representatives of most diverse pursuits the bearing which their specialties have on the central theme. We must intrust to our council the question of making the meetings interesting and useful; but some thought given to the subject now may possibly prove of value in the future. One obvious and grievous fault of the past must be corrected—a superfluity of meetings. One or two academy meetings a month should suffice for our purposes,—perhaps 15 meetings a year. None of us want more than that added to our inevitable tasks.

When the subject is chosen, let us require that it be something vital and of broad bearing. Such subjects are almost innumerable. There are few uncomplicated diseases, and we all of us, mostly, are ready to take hints from other workers in other fields. Such subjects as typhoid fever, rheumatism, phthisis, leukemia, ovariectomy, hare-lip, obstinate forms of headache, constipation, etc., symptoms as well as diseases, illustrate what is meant. There is no doubt that many patients, after abdominal section, would benefit from the advice of an expert in internal medicine, and that many a case of typhoid fever or phthisis is saved or hastened towards recovery by the surgeon's art. In the study of symptoms, especially, the experience of many specialists is of the greatest value. Obstinate migraine may elude the surgeon, the physician, the neurologist, the oculist, the orthopedist, the dermatologist, the dentist, to fall at last into the hands of the rhinologist to be cured. Of course all this is no new thing, and is no panacea; it is only a suggestion that those things which hitherto we have done, haltingly and spasmodically, be done in the future regularly and thoroughly, so far as to us may seem good.

After we have provided the subject, and those who may best present it, let us urge upon them two things, hints for the benefit of the patient audience: make the papers short and make them lucid. Words spoken in public, at night, to a company of brain-weary men, should not be as the

written monograph or the final mighty argument of the encyclopedia. Perhaps the papers were best censored, though that may well be left. But there are the debaters, the speakers from the floor; what shall we say of them? There are three types: (1) The forceful, brief talker, the man who has something to say to the point and says it; (2) the complimenting, verbose man, who seizes the occasion to discourse at unconscionable length on various cases of his own; and (3), in a thinly attended, unresponsive meeting, the charitable man, who knows that nothing of importance remains to be said, but talks to save the day.

How shall we deal with these friends of ours? We have tried the naming of appointed speakers; that works fairly well. We have tried leaving the debate to chance; that frequently ends in chilling silence. We have tried publishing in advance synopses of the papers, but no method has been satisfactory always. We have tried setting a time limit on each speaker—often an excellent plan. Perhaps, after all, the secret lies with the presiding officer, who should have some knowledge of the subject, and should call wisely on members from the floor.

One is reminded that in some scientific bodies, not too dissimilar from ours, the appointed papers are printed and distributed several days before the meeting, so that those who care to do so may study the subject and plan for the debate.

When an earnest desire to get at the truth exists, and the underlying thought is that the question must be probed to the bottom and discussed with intelligence to the interest and enlightenment of the auditors, this plan certainly has great advantages. It is said that where it has been used the interest in, and attendance at, meetings has increased, and the value of debate has been conspicuous.

These are some of the thoughts which have been drifting about in our atmosphere during the past year or more. I have tried to give them voice—not as settled plans or even as formulated propositions, but as collective hints for further talk, that in some way, if the conditions demand it, but forcing no one's hand, we may struggle beyond the sometime dreariness which most of us confess.

#### A PLAN FOR THE MUNICIPAL CONTROL OF TUBERCULOSIS IN BOSTON.<sup>1</sup>

BY AGNES C. VIETOR, M.D., BOSTON,

*Assistant Surgeon New England Hospital, Boston; Late Instructor in Physical Diagnosis and Surgery, Woman's Medical College of the New York Infirmary; etc.*

THE subject of tuberculosis is so vast that volumes have been, and will yet be, written about it. As this paper is prepared with a practical intention,<sup>2</sup> it will suffice to say that reduced to its

<sup>1</sup> Read before the New England Hospital Medical Society Oct. 17, 1901.

<sup>2</sup> Last winter, a number of citizens of Boston, men and women of the medical profession and of the community at large, met to consider the subject of tuberculosis in Boston, and to find some method for its control. From this Committee of the Whole, five



simplest terms the problem is this: Out of the darkness and confusion of ignorance, tuberculosis today stands acknowledged as a definite diseased condition of one or more parts of the body, due to the living in these parts of a special vegetable organism, called the bacillus tuberculosis. For varying periods of time, this vegetable growth remains confined to the part affected; after varying periods of time, this vegetable growth is discharged from the part affected, and if it finds congenial soil in the same, or in another, patient, it will again begin its life growth.

To express this differently and apply it to the problem indicated by the title of this paper: Today, in Boston, a very large proportion of the men, women and children have a weakened vitality of one or more parts of the body, furnishing excellent food for lower forms of life. Upon these weakened parts, in a large number of cases, is growing the vegetable organism called the bacillus tuberculosis; in a large number of these latter cases, the growth of the vegetable organism has been so great and the destruction of the part of the body affected has been so extensive that these little plants, together with the broken-down tissues upon which they have been growing, are being discharged from the patients and, meeting unfavorable conditions, are dying, or, meeting favorable conditions in the same or other persons, are renewing their vitality and growing and reproducing, to repeat the cycle over and over.

Coincident with the growth of this parasitic plant is the destruction of the part upon which it feeds; and, further, as the parasitic plant is a living thing, the making and giving off of waste products is incident to its life; these waste products are absorbed into the circulation of the patient and there act as poisons or *toxins*, which impair the vitality of the whole system. In this way this parasitic plant attacks the patient both locally and generally, and causes all stages of ill health up to death.

The one fact that stands out prominently in this bird's-eye view of the subject is that the problem is *dual*. It is the parasite and the host; the plant and the soil; the disease-causing germ and the prepared patient. And the human experience of centuries and the later researches of the laboratory show not only the same duality, but show also that the dual factors are strictly complementary. The relation of these dual factors may be broadly stated thus: The more favorable the soil, the less vigorous must the plant be to grow in it;

and, conversely, the more vigorous the plant, the less favorable need be the soil.

Laboratory research, thus far, has shown:

(1) That the human body when in a state of high vigor or vitality or health, possesses in itself cells which bodily destroy these parasitic plants, and other cells or tissues which manufacture a chemical compound which antidotes the toxins produced by the life growth of the plants. Thus, the most unfavorable soil for this plant growth is a living body in a state of full health and vigor, as this means that both phagocytes and antitoxin-producing tissues are in full fighting trim.

(2) Laboratory research has shown, again, that these plants vary in strength or vigor or, to use the laboratory term, in *virulence*. It has shown that the power of the plant to overcome unfavorable conditions of soil depends on the vitality or virulence of the plant garden or *culture*; and that this virulence may be increased or decreased at will.

The logical sequence of this research is that the extinction of tuberculosis depends on the dual factors (1) of putting the men, women and children in the condition of highest vitality and vigor, so that they may of themselves be prepared to destroy any tuberculosis plants which may gain access to any part of the body, and (2) of decreasing the virulence of the tuberculosis plants wherever they may exist. Clinical observation in every physician's practice and in the experience of every community is in harmony with these results of laboratory research. The laboratory has shown us that tuberculosis can be controlled and cured. Stumbling clinical experience has shown us the same. Has the time not come for Boston to stumble blindly no longer, but to apply the clearly demonstrated facts of scientific research to everyday life, and to deliberately and purposefully control tuberculosis and eradicate tuberculosis, as we have already controlled and practically eradicated other former scourges?

It is not possible to say exactly how many people in Boston are cultivating little gardens of this parasitic plant, but the number must be very large, since, today, one-sixth to one-seventh of all deaths are due to tuberculosis, and the pathologists tell us it is comparatively rare to make a post mortem and not find traces of the person having had tuberculosis at some time in his life. But, indeed, exact statistics are not necessary to arouse interest in this subject; every district, every neighborhood, every family can give its own sad, personal statistics. The important fact is that tuberculosis is so widespread that its control has passed beyond the limits of individual powers. No individual, no family, no neighborhood can take efficient measures of control; it permeates the whole community, and it must be fought by the whole community. No law can control it, no law can exterminate it. The law can by penalties discountenance certain actions, but it can not regulate the details of people's lives, their eating, drinking, clothing, sleeping,

members were appointed a Committee of Ways and Means; of this latter committee the writer has the honor of being a member. This Committee of Ways and Means reported that tuberculosis is so widely distributed through out the community that its control has become a municipal question. Receiving authority to act, the committee then brought the matter before the City Government. The view of the committee was at once endorsed: the mayor gave it his hearty support; a bill appropriating a large sum of money was introduced in the City Council; and the Board of Aldermen gave a public hearing at which members of the committee and many prominent citizens spoke. The State Legislature passed a special bill giving the city of Boston power to act in such a matter, and eventually the City Government appropriated \$100,000 for the purpose. At the present writing, the question has progressed to this point. This paper explains in detail the suggestions made by the writer before the Suffolk District Medical Society and at the hearing by the Board of Aldermen.



breathing, even thinking, and nothing less than this is demanded for the eradication of tuberculosis. The people, the whole people, must learn that the prevention, cure and extermination of this diseased condition resides primarily in themselves; that no city government, no board of health, no hospitals, no system of sanatoria, no doctors, no medicines, can do what each man, woman and child must do for himself, every day of his life. All these other measures enumerated are, each in its place, valuable adjuncts but valuable only as seconding what he does for himself.

When a disease is to be combated, the first thought in the mass mind is that doctors and special hospitals will take care of the problem. In this case, sufferers from the disease are so numerous that enough hospitals could not be built to hold them all. The great source of difficulty in controlling tuberculosis is that stress being laid on its being a contagious disease, analogy and precedent lead us to group it with other contagious diseases and instinctively to call for similar methods of treatment and prevention. The first essential is to see how far a wise analogy and precedent will guide us. In studying the contagious diseases we find that, as regards prevention, they may be divided into two main classes: (I) Those in which matters of hygiene and sanitation are of prime importance, so that it is not chimerical to think that the ultimate eradication of this class of disease depends primarily on hygiene and sanitation. As a type of this class may be taken typhoid fever. The prevention and ultimate eradication of this class of contagious disease rests principally with the community as a whole. (II) Those which, while matters of hygiene and sanitation are of fundamental importance, are yet so insufficiently controlled by them as to lead us to think that the ultimate eradication of the diseases depends on some factor additional to hygiene and sanitation. In this class may be placed measles, scarlet fever, etc. In the prevention and ultimate eradication of this class of contagious disease, not only is the community as a whole responsible, but an additional necessity is further research by the specially qualified medical and biological professions.

In which of these classes may tuberculosis, at the present day, be placed? Remembering always that all contagious diseases are dual, that the plant and the soil must both be considered, shall we classify tuberculosis with typhoid fever in that while the plant and the method of contagion are well known, we know practically nothing of the predisposing soil; with diphtheria and Asiatic cholera, in that while the plants and the methods of contagion are more or less well known, only a little is known as to the predisposing soil; with scarlet fever and measles, in that plant, methods of contagion and elements of predisposing soil are all shrouded in darkness; and so on? Each contagious disease differs in so many ways from all the others that classification can be only in the most generalized way, as indicated above; and according to this classification, tuberculosis

would belong in Class I. This classification is of the utmost importance. If people are taught simply that tuberculosis is a contagious disease, they immediately class it with smallpox, scarlet fever and diphtheria, and the consequence is the condition of panic which is becoming more evident every day. The mere suggestion of its presence tends to create a stampede; persons suffering with any kind of a cough or catarrh are ostracized socially; hotels, cities and whole sections of the country are quarantined; or they themselves seek to establish a quarantine against suspected patients. Everyone eyes his neighbor askance, with the result that people really suffering from tuberculosis are now driven in self-defense to try to hide it, and this attempted secrecy not only embitters the life of the patient and his caretakers, but it hinders his recovery and really increases the danger to himself and to the community. What people should be taught is that tuberculosis is a contagious disease, but that the contagion is controllable; that patients caring for themselves properly are not a danger to their surroundings, and that, so caring for themselves, they have a right to the same freedom of life, occupation, travel and sojourn as their unaffected neighbors. It follows logically from this that patients who do not control their contagion are guilty of offense against the welfare of the community, and should be taught, controlled or punished, according to circumstances, as we already teach, control or punish offenders against the decency, the health or the safety of the community.

The reasons for placing tuberculosis in the class described are that today we know perhaps more of the tuberculosis plant, its distribution, its laws, and the soil which favors its growth, than we know of the conditions of any other contagious disease. We know the plant is one of general distribution but of low vitality, tending to die or to remain passive and merely existing, gradually dying, powerless to grow except under the favoring environment of lodgment in the body of man and certain warm-blooded animals. Its growth is inhibited by light and favored by darkness; by temperature below 25° C. and above 40° C. It is easily killed by sunlight or even ordinary diffused daylight and by dryness. It is distinctly a parasite, and its growth in the human body depends on the existence of weakened tissues. Its virulence when lessened may be restored and increased by passing through susceptible animals. Its growth in the human body is entirely stopped and the plant itself killed by increasing the resistance of the system so that the antitoxin-producing tissues will be able to manufacture sufficient antitoxin to antidote the toxins made by the bacilli, and so that the phagocytes will be strong enough to destroy the bacilli themselves.

This increased fighting power of the system is attained by exposure of the patient's lungs to the open air, day and night, all the year round; by the practical obliteration of window-shades and the control of the weather sensations by suitable

clothing; by the patient being entirely out-of-doors and in as much sunlight as possible for a minimum period of 10 hours a day; by carefully regulated passive and active movements and exercises designed to increase oxidation and heart and lung capacity; by cessation of active movements whenever the fever-producing toxins are present; by the carefully prescribed use of hydrotherapy to increase oxidation and heart and lung capacity, to tone up the nervous system, especially the vaso-motor nerves, and to promote excretion; by eating judiciously selected, properly cooked food in such quantities and at such frequently repeated intervals as digestion and assimilation permit; by judicious medical supervision of the daily life; by surgical removal of such tubercular growths as do not yield to the general treatment and as can be safely reached.

It has been pointed out that the tubercle bacilli reach their most luxurious natural development, and hence their highest degree of natural virulence, in the human body and in certain warm-blooded animals, in a condition of lowered vitality. Now, the great causes of lowered vitality in people are, first, lowered vitality of their parents. However, Nature is conservative and every living thing is born into this world with upward tendencies. After it enters this world, it is subject to the laws of its environment, which are the same for all. The only difference is in the degree of reaction of differing individuals to these laws. Leaving the disputed and unsettled question of inherited tuberculosis, it may be accepted that a condition of lowered vitality, predisposing to the formation of favorable soil for the growth of the tubercle bacillus, is a frequent inheritance. Such people differ from people of other ancestry in that they must make more strenuous effort to increase their resisting power (as already indicated) and to escape the other great causes of lowered vitality which exist in environment. These great causes are: (1) Insufficient food; (2) insufficient air and light; (3) overwork; (4) worry.

(1) *Insufficient food.*—Insufficient in actual quantity, or relatively insufficient, from deteriorated quality, from adulteration, from substitution or from bad cooking or from unsavory serving.

(2) *Insufficient air and light.*—Actual insufficiency, as from overcrowding or from living in rooms possessing insufficient windows opening to proper air and light; or relative insufficiency, due to keeping windows closed on account of kind of employment, or from lack of sufficient fuel or clothing to protect from the weather, or on account of surrounding dust or noise.

(3) *Overwork.*—Too long hours; work disproportioned to strength in either duration or stress, or both, especially in children and in women who are incapacitated by ills developed by marriage, child-bearing, etc.

(4) *Worry.*—The increasing pressure of the struggle for existence in accordance with the demands of modern civilized life, especially according to the American standard; anxiety from

insufficient tenure of employment; from insufficient wages.

The writer has purposely omitted from the above groupings individual causes of lowered vitality, and has included only those which are pertinent to the objects of this paper; that is, those considerations which the people of Boston, as a whole, must consider and act upon. Broadly speaking, the conditions enumerated are due to ignorance and poverty. I place ignorance first, and, indeed, it would be all comprehensive if I said ignorance alone is sufficient to explain the prevalence of these conditions, for poverty in Boston today is due only to ignorance. I can only indicate this, within the limits of this paper, by pointing out the remedy which the people of Boston must apply. The remedy lies not in teaching the community that tuberculosis is a widely distributed contagious disease, that patients who have this disease should be isolated and quarantined as are patients with other contagious diseases, and that a few hospitals or sanatoria must be built to receive the most hopeless or the most ambitious cases. On the contrary, the duality of the problem must be taught to all the people. Everyone must learn that the disease is due to a plant that will not thrive unless it has favorable soil, and that its most favoring soil is the human body in a condition of lowered vitality; that the natural virulence of the plant is increased by passing it through such human body; and that the bodies of the underfed, the overworked, the overcrowded and the unemployed or the precariously employed are the city laboratory, in which the virulence of the plant cultures is maintained and increased, and from whence it is, and always will be, continually distributed to the employed, the well fed, the well housed, the comfortable and the happy. If we will not be our brother's keeper, we awake and find that in some terrible way our neglected brother has become our destroyer. The poor man is at the mercy of the rich man for his daily bread, but the rich man is at the mercy of the diseases cultivated in the poor man by this daily bread being insufficient for maintaining a vigorous vitality.

How can such a stupendous lesson be taught? An unpaid municipal tuberculosis committee should be appointed—a committee of men and women fitted to grasp the subject in its entirety. This committee would study the subject broadly, and imparting its knowledge to the people, would soon have such an enlightened public sentiment behind it that no difficulty would be found in enforcing its recommendations. A series of popular lectures should be given in the public school buildings, in the evenings, to the parents and friends of the pupils, thus at once reaching into the centre of the mass of the people. The success of such a plan is very evident in New York, where a similar course of lectures on various subjects has become a permanent institution. In 1892, when Asiatic cholera threatened to visit this country again, the writer was one of a number of physicians invited to speak in this course on "Asiatic

**Cholera: What it is and How to Prevent It,"** and she can vouch for the size and attention of the audiences. There is no doubt these lectures were a potent factor in averting the usual panic, as well as enlightening the mass of people regarding a visitation that would otherwise be but a cause of superstition and despair. In the schools themselves, the dependence of tuberculosis on hygiene and sanitation, as exemplified in the daily life, should be as important as arithmetic. Sub-committees should study the question of dust and noise, so that the great objection to open windows should be overcome. Can anyone believe that if the people of Boston really wanted to keep their windows wide open, street dust and noise could not be controlled? Other sub-committees should study the subject of foods, their cooking and serving.

It is a truism to say enough food is wasted by bad cooking and unappetizing serving to feed all the hungry. Anyone who has time or interest to examine the matter will be amazed, as has been the writer, to find how almost impossible it is, today in Boston, for a working man or woman who has not a housekeeper, to obtain good food, properly cooked and even fairly served. Mrs. Ellen Richards and her co-workers and the New England Kitchen have shown how unnecessary this is, but some concerted action on a large scale is necessary. Such a sub-committee as is suggested is what is needed. A sub-committee on tenements and dwellings and one on other buildings, workshops, factories, schools, churches, etc., would work to increase air and light space. A sub-committee on employment would endeavor to readjust workers and conditions—there is plenty of undone work, there are plenty of workers; the two factors need a third to make them complementary. The sub-committee on nursing and disinfection would have charge of visiting nurses, who would teach the people in their own houses how to receive discharged bacilli and render them harmless, and how to care for patients with safety to themselves and others.

The question of disinfection would be considered by this sub-committee in a rational manner. People would be taught that the best disinfectants are fresh air plus soap and water, and that where these latter cannot be applied (walls, bedding, upholstered furniture, etc.), a penetrating gas is the best substitute. This view of the subject would remove the superstition and panic attached to disinfection, and would make a daily disinfection of enclosed spaces frequented by heterogeneous masses of people (as lodging houses, cabs, street and railroad cars, etc.) as much a matter of course as are now the absurd attempts at cleaning these enclosures by sweeping and dusting.

A model sanatorium should be erected in each section of the city, which should be a living example of what the people should emulate in their own homes; and selected cases should be sent there for short periods of time, not so that the public should carry the burden which should be borne by the family and friends, but so that the

patient might learn by experience how to live at home. Finally, but last of all in importance in eradicating tuberculosis, there should be a hospital, distinctly charitable, to receive those poor, desolate people who cannot care for themselves and who have no home, family or friends. If the problem is properly faced, and the burdens placed where they rightfully belong, this hospital, under the plan outlined in this paper, will not need to be a very large one. The people should be taught what the disease is, that it is preventable, that it is controllable, that it is curable, but that the prevention, control and cure reside first of all in the patient himself; that the committee will teach him the methods of prevention, control and cure, and will help him to apply them, but that he must do his share for himself, and that he must protect from harm all who associate with him. The paternal system is not the American system; it is impossible to build enough hospitals and sanatoria to care for the tubercular patients in Boston—they are too numerous; if it were possible, it would not be the better way. That man's health is best guarded who guards it himself. Let every house be a sanitarium; some part of every house a sanatorium; let every roof be an out-of-doors resort; a selected corner of every roof a solarium. Thus, every family and every individual will work, each for his own good and all for the common good. Altruism does not appeal to all of us, but an enlightened egoism leads to the same material destination.

#### RÉSUMÉ.

(1) Laying exclusive or even predominant emphasis on the contagiousness of tuberculosis is an error of fact as well as of judgment.

(2) Such a course is creating a condition of panic which works infinite harm and does nothing towards eradicating the disease. As a large proportion of the community has tuberculosis, this panic results only in universal suspicion, every person with a simple cough or catarrh being eyed askance; in social ostracism of individuals, even in the noncontagious stage; in foolish attempts at quarantining patients, and in unwise efforts to wall off the parts of the country climatically most desirable for people with impaired health.

(3) The course dictated by exact research is a recognition of the fact that the problem is dual; that tuberculosis is a diseased condition due to the growth of a vegetable parasite (the bacillus tuberculosis) upon a part of the body in a condition of lowered vitality; that this parasite when discharged from the patient affected is of low vitality and tends to die, especially when exposed to sunlight, to dryness and to temperatures below 28° C. and above 40° C.; that the extermination of this plant by attacking it outside of the living body is impossible, because its strong entrenchment is in the bodies of people in a condition of lowered vitality; that the virulence of the plant is maintained and increased by passing it through the bodies of such people, and that while such people exist the virulence of the plant can

never be destroyed; that the great sources in the community of such lowered vitality are (a) insufficient food, (b) insufficient air and light, (c) overwork, (d) worry. From this it follows:

(4) That the fundamental factor in the existence and increase of tuberculosis is the health of the mass of the people; and

(5) That the community which does not vigorously attack the removable causes that lower this mass health, passively supports a city laboratory for the manufacture and maintenance of virulent cultures of the tubercle bacillus.

(6) The only definite decrease in tuberculosis statistics yet recorded is (a) the cures effected in patients who adopt some modification of the open-air life, with superfeeding and freedom from overwork and worry; (b) the improvement in certain New England statistics during late years, the only changed factor of general extent being the almost universal use of the bicycle and other recreations tending to increase outdoor life, especially among women, and (c) the decreasing statistics of tuberculosis in German villages where tuberculosis sanatoria are established, the lives of the villagers, consciously and unconsciously, imitating the example of the sanatoria.

(7) In view of the conditions outlined above, and as Boston has now appropriated money and is standing ready to take municipal action looking towards the control of tuberculosis, the writer would suggest the following: An unpaid municipal tuberculosis committee of men and women fitted to view the subject broadly. Sub-committees on air and light in tenements and dwellings; in other buildings, as workshops, factories, schools, etc.; on cooking and savory serving of food on a large enough scale to give the poorest a chance to be well nourished; on employment, to put the vast army of unemployed or precariously employed in connection with the equally vast field of undone work; on dust and noise, which decrease the available air and light in even the wealthiest and wisest households; on nursing and disinfection; and so on. These committees will find many organizations of men and women already trained, but working now in isolated groups; this municipal tuberculosis committee will be the needed centre with which these trained groups can co-operate to make a coherent whole. To mention but one of the many lines of thought suggested—how those wise people who have established the "country week," the "fresh air excursions," the "vacation week" and kindred institutions, but who have striven unsuccessfully in other ways with the problem of the congestion of cities; how these people will find this problem illuminated and made easy by the teachings of this committee, that leaving the congested quarters of the city and beginning life anew in the suburbs or in the country is no arbitrary whim of charity or philanthropy, but is literally health and life to themselves and to those dear ones who are fading away before their despairing eyes.

(8) A model sanatorium should be erected in each section of the city, as a living example of

the method of living which cures. To these sanatoria selected cases should be sent for short periods, to learn the lesson by actual experience; returning to their homes they will themselves be teachers to ever new and widening groups.

(9) Finally, but of least importance for the eradication of the disease, a distinctly charitable hospital is needed to care for the really destitute and desolate. But with the wiser, better control of the situation by the whole community, and if this charity is guarded against the abuse from which all medical charity suffers today,<sup>2</sup> this hospital will not need to be a very large one.

### SIX CASES OF OPERATION FOR CLEFT PALATE.<sup>1</sup>

BY C. A. PORTER, M.D., BOSTON,

*Surgeon to Out-Patients, Massachusetts General Hospital.*

I HAVE 6 cases of operation upon cleft palates to report as a contribution to the surgical treatment of this defect.

CASE I. A girl of 9 months, with hare-lip, protruding intermaxillary bone, and complete cleft of the hard and soft palate. The hare-lip had been previously operated upon, the intermaxillary bone had been turned inwards, and it was extremely difficult to get sufficient tissue for approximation. Result, complete breaking down in 4 days.

CASE II. Man of 35. Complete cleft of soft palate, and posterior half-inch of hard. As the man had a bad mitral lesion, operation was done under cocaine, without requiring lateral incisions; primary union.

CASE III. Girl of 16. Cleft of hard and soft palate; lateral incisions; complete primary union.

CASE IV. Girl of 3. Hard and soft palates; lateral incisions; complete primary union.

CASE V. Girl of 4. Hard and soft palates; lateral incisions; primary union.

CASE VI. (a) Girl of 18 months. Hard and soft palates; lateral incisions; absolute failure at end of 3 days.

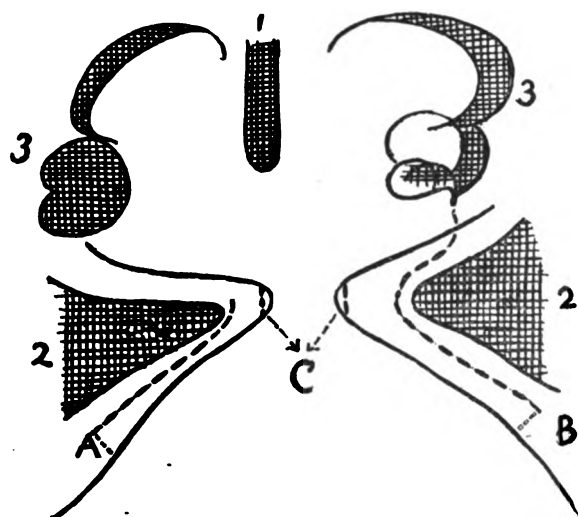
CASE VI. (b) Same case. Second operation, at age of 2½ years. Complete primary union.

While these cases are not many in number, the percentage of good results is probably above the average, and I attribute my success to a careful observation of the many operations done by my father, Dr. C. B. Porter. I have followed his operation in all essentials, with a few minor exceptions. I have not used plates. I have operated on younger cases than he has advised. I have made, I think, one important modification in the subsequent treatment of young patients, which, so far as I know, has not been previously mentioned. Immediately after operation the child is held firmly in bed, on its back, with a swathe. The hands are confined at the wrist by a band, which is pinned to the swathe in such a way that, while a certain amount of motion is possible, neither hand can reach the mouth. Both nostrils are plugged with cotton wool as soon as the child recovers from ether. Mouth breathing thus be-

<sup>2</sup> Agnes C. Victor: The Abuse of Medical Charity. Boston Medical and Surgical Journal, May 4, 1899.

<sup>1</sup> Read before the Surgical Section of the Suffolk District Medical Society, November, 1901.

comes a necessity, and the palate, instead of being moist, is dry, and maceration does not occur. As a result of this confinement, the child is frequently very restless and fretful and requires most careful nursing; for instruction is given that the child should be kept from crying by small, frequently repeated doses of bromide and chloral or deodorized tincture of opium. The amount of these drugs which have to be given is very variable. I have noticed that such children require relatively large doses of opium to keep them quiet, and that while they are taking this they seem to be somewhat stimulated by it. Upon the withdrawal of the drug, however, the child is apt to sleep soundly for 24 to 36 hours. With a spoon, a little brandy and water may be given, but for the first 3 or 4 days the rectum should be used for saline and nutritive enemata every 6 hours. At the end of 4 or 5 days liquids may be given by mouth. In only 1



VERTICAL SECTION.

- (1) Vomer.
- (2) Hard palate.
- (3) Turbinated bones.
- (A) Usual incision near alveolar arch, periosteum and mucous membrane dissected up in flap.
- (B) Incision prolonged through flap into nasal side of cleft, thus allowing flap to be swung clear to median line.
- (C) Denuded edge of cleft.

case has any serious condition developed. This child (Case VI, second operation), on the fifth day, had a high fever, a very rapid pulse, with sunken eyes, and a dry scab on the palate. It was found out, on careful inquiry, that the saline enemata had not been given for 2 days. The plugs were immediately removed, the child frequently fed by mouth, and in 24 hours was again in good condition.

The majority of these children resent, by crying and struggling, any interference with the wound, and it seems to me that frequent swabbing of the mouth with peroxide of hydrogen, etc., does more harm than good. I have, therefore, preferred not to look at the wound for 3 or 4 days. In older children or adults, who are more tractable, the palate wound should be cleaned

frequently with peroxide, and antiseptic nasal douches should be given several times in the 24 hours.

With regard to the technique of the operation, from a consideration of the failures which I have seen, it seems to me that the following points are of great importance:

A careful and complete denudation of the whole cleft, best accomplished by grasping the tip of the uvula with fine forceps, and cutting from before backwards, on either side, a continuous strip of mucous membrane about one-eighth of an inch wide. If, as sometimes happens, the edge appears too thin, the flap may be split for one-eighth of an inch before suture, thus giving a broader surface for approximation. Two lateral incisions, from the level of the canine teeth, close to the margin of the alveolar arch, back to, and through, the fan-like expansion of the tensor palati muscle. Each incision should not be nearer than one-half an inch to the tendon of this muscle, where it winds round the hamular process. By these incisions, tension on the stitches through the soft palate is avoided, and, after healing, the tensor palati again resumes some of its function. The levator palati muscle should not be cut. Enlarged tonsils and adenoid vegetations should be removed previous to operation. In 2 cases, where this had not been done, I have had troublesome bleeding and a larger raw surface than necessary was left open to infection. The most important point of all is that the edges to be sutured should never be crushed by grasping them with forceps and all tension must be avoided. I have seen several cases where tension was kept up by a lack of free division of the mucous membrane on the nasal side of the palate. This can, if necessary, be divided.

As a rule too many stitches are used. These stitches are placed too near together and not far enough from the edges of the cleft. Furthermore, the stitches are *almost always* tied too tightly, owing to the difficulty of tying them in such a small space, and not infrequently to the child's struggling under partial anesthesia. Subsequent swelling occurs from the trauma and infection, and the sutures, which at the operation may have been apparently loosely tied, will be found to be cutting on the second day. I have endeavored to place the stitches three-eighths of an inch apart, and the same distance from the edge of the wound. Usually six stitches will suffice. A non-absorbent suture is indicated. Silver wire, I think, causes too much irritation to the tongue. Silkworm gut frequently causes a small slough under the end of the suture. I have therefore used silk, previously soaked in Balsam of Peru. The stitches should be removed at the end of a week, and in spite of all precautions will probably have cut a little by that time.

Rose's position is, without question, superior to any other. Unless contra-indicated from the condition of the child, or the bias of the surgeon, chloroform anesthesia is unquestionably superior to ether, owing to the more quiet breathing and

absence of mucus. In children the danger of accident is very slight.

I have not yet used the old-fashioned silver plates advocated by Dr. Fillebrown. However, I can understand that in certain cases they may be of advantage.

The after-treatment of cases operated upon, has, I fear, been too much neglected. Adhesions about the palate should be divided, where present, and the soft palate exercised, massaged and made movable by voluntary contractions in adult cases, and by passive motion and stretching with the finger, in children. The power of speaking properly, in spite of a good technical result after operation, is almost always in direct ratio to the time spent in instruction and the intelligent effort of the patient.

One other consideration arises in regard to the question of the removal of enlarged tonsils and adenoids, previously mentioned. It seems not unlikely that they may, in certain cases, aid in closing the nasopharynx, and may thus be of definite advantage in speech. It occurs to me also, though I have had no experience, that submucous injection of paraffin, or white vaseline, as advocated by Gersuny of Vienna, may be of advantage in diminishing the nasopharyngeal space at a point opposite the soft palate.

#### THE TREATMENT OF CONGENITAL CLEFT PALATE BY MECHANICAL APPLIANCES.<sup>1</sup>

BY DR. GEORGE A. RAYMOND, BOSTON.

In presenting this subject, I shall try to omit some of the material which I have given before other medical societies, including one which I read before the Boston Society for Medical Improvement, which was published in the *Boston Medical and Surgical Journal* Dec. 9, 1897. And yet I find it necessary to retrace my steps to a certain extent. In my former papers I have demonstrated that there is but one function impaired by the deformity of cleft palate which justifies any attempt in its restoration, namely, the restoration of the normal voice. The inability of the infant to swallow may for a very short period seem to demand some attention, but long before a child is old enough for either an operation or an appliance (unless you operate at once) the nimble tongue has overcome the difficulty, and it has adapted itself to the conditions.

In order to have a good speech, there must be a roomy oral vault without obstructions. For the production of all the open vowels and all the consonants save the nasals, there must be perfect closure of the post-nasal space.

When the vault of the pharynx is shut off, the velum is so raised that it extends for a little space directly backward on a level with the palate bones, and then curves gradually downward and backward, its posterior surface striking the

posterior wall of the pharynx, which process you are familiar with; therefore it is unnecessary for me to take your valuable time to explain those physiological functions.

In my former declaration I stated that I had been unable to find a single case where a perfect speech ever resulted from a surgical operation. Notwithstanding all that is claimed by the men who advocate the surgical treatment, I am obliged to declare that I cannot find any trace of a case where a perfect speech has resulted. I have seen them stand up and say "mamma" and "papa," and a few such words, but one of the worst cases I ever saw was a child who could say "mamma" and "papa" as distinctly as you and I can, but in every other way you could scarcely understand anything she said. There are certain known elements of speech, giving sounds and combinations of sounds that, if the speech be perfect, they must be able to articulate distinctly. In the onward march of progress a few zealous operators during the past few years have taken up the work with renewed interest, and now we are confronted with their claims of success in attaining to a perfect speech by some new methods of procedure in the operation. I will admit that with care any careful operator can close the cleft and make it a surgical success, but after years of investigation, and having examined a large number of cases, I will say that in no case have I found anything with even a resemblance to a physiological palate; hence their failure in producing a good speech.

During the past two or three years I have had cases presented to me where they thought they had seen the fruition of their hopes, and made the operation as successful as other operations of equal importance.

When we consider, however, that the great body of physicians and surgeons fail to find an improved speech, we are led to feel that there is something mysterious about such claims. Why, gentlemen, we even hear of faith cures and of Christian Scientists doing those things, and louder claims than this are in the air today; but I fear that they will always remain in the air. Some time ago a young lady from Portland, Me., whose case had been brought to my notice by her Christian Endeavor friends who wanted me to make her an appliance to correct her very bad speech, as the result of a cleft palate. Imagine my surprise when she wrote me that "She had asked the Lord to heal her speech, and she believed he had done so, although she herself had not received the full consciousness of it." Someone is to blame! With the mechanical appliance carefully fitted and adapted with the greatest possible accuracy, I find no difficulty whatever in having even a child become so accustomed to it that it is worn with as much ease and comfort as a set of teeth is worn by an adult.

I presented a case before the Improvement Society,—that of a child fitted to an appliance at the age of eight years, during the summer of 1895. She has worn the same appliance ever since, and her speech became so perfect that

<sup>1</sup> Read before the Surgical Section, Suffolk District Medical Society, Nov. 6, 1901.



every one pronounced it about perfect. She has now reached the age where the further development of the mouth and other organs makes it necessary to make a new appliance, as the limitations are now so great that the speech would very soon become impaired unless we fit the second appliance.

This is one of the advantages of the appliance, for you can at any time meet the requirements made necessary by the development. With the operation, what you may gain in childhood is lost when they arrive at an adult age. Realizing that the only hope of an operation being anything like a success, it has been done in very early childhood, but in after years we have found that the limitations brought about by the development of the surgical palate not being commensurate with the other organs of the mouth and throat, the last condition was worse than the first. To illustrate this fact I presented a case before the South District Medical Society at Cambridge some two or three years ago. A young lady who has grown to womanhood was operated on in Boston by one of our most distinguished surgeons. The operation was done in early childhood, and what she seemed to gain by the early operation was entirely lost when she reached an adult age. Her speech is now even worse than it would have been had she been left alone. Her name is Jennie, but if she speaks her name she will say "Yennie." This young lady has kindly consented to be here tonight so that you can hear her speech in person. I have also a model of her mouth, which you can see at the close of the meeting.

Another case, of a young man, son of a Boston barber, who was operated on some time ago at one of our hospitals in Boston, has many of the same defects; for instance, he will say "heam" for steam.

The only thing we can do now is to undo the operation, and fit appliances.

Mrs. C., 28 years old, was fitted to an appliance by a dentist when a young girl, but by its improper adjustment to the conditions she was unable to wear it. I fitted her to a new appliance in 1894, which she has been wearing ever since, and she can clearly articulate any and all the elements of speech. Dr. Richardson has seen this lady and heard her speak.

Miss W., 21 years old, with a wide congenital cleft of the soft palate reaching forward a little way into the hard palate, and including hare-lip. I fitted her to an appliance in 1897. She has since cultivated her voice in singing, and her speech is so perfect that she can pronounce any word or sentence in the English language, giving every element of articulate speech as perfectly as I can myself. Dr. Richardson also saw this young lady while she was here on a recent visit from her home in the West.

Miss F., 32 years old, sent to me from Pennsylvania, was fitted to an appliance by a prominent specialist in this department, some 10 years ago, in New York City. The appliance used was what is known as the soft-rubber velum, which is

supposed to be flexible enough to allow the required amount of flexibility to the palate in the mechanism of speech. But in the wearing of such an appliance I found that the muscles were sort of cramped, as it were, and therefore was a hindrance to a clear articulation. I fitted her to an appliance, about a year ago, and in this case there was a marked improvement in the speech at once,—that is, I should say, as to quality of tone. She has done so well in the use of her appliance that I expect to make similar appliances this winter for a younger sister, and also a cousin, having the same trouble. As a matter of speech, we do not look for perfection at once, but if the former limitations are removed, I find that, just as soon as they become accustomed to the use of the appliance, the tone is changed in quality as much as the tone of a violin with the sounding-post put back in position after having been taken out, or the bridge changed from the wrong to the right position.

I have several times demonstrated the quality of speech on the phonograph, as well as by allowing you to hear them speak in person.

Miss D., aged 15 years, came to me 4 years ago this last summer through Dr. Richardson. The cleft was not large, but let me say right here, that some of the worst cases of speech I have ever seen have been cases where the cleft was small. This young lady is now attending one of our suburban schools for young ladies, and you will hear her speak in person tonight, that you may notice the improved speech brought about by the wearing of such a mechanical device. Of course, from 15 to 19 has brought some slight change in development, but still, the speech is very satisfactory indeed, and at such times as the limitations become greater by development we will make the necessary changes.

Mr. W., 23 years old, was fitted to an appliance 2 years ago. He has an exceedingly large cleft covering the whole roof of the mouth, the opening being about 2 inches wide at the back and reaching forward to within less than half an inch of the front teeth. You will see that formerly the cleft extended through the alveolus, terminating with the hare-lip. The lip was closed in Edinburgh, Scotland, and an attempt was made, I think, to close the cleft, but was given up.

I did not know as I could retain a plate in the mouth firm enough to carry an obturator of such magnitude, but he has tolerated it with quite a degree of comfort. I am thinking of some little changes of adaptation, but consider the case one of interest, great enough to warrant presenting him to you tonight. I think he will be willing to let you hear his speech without the appliance.

The claim has been made by the advocates of the surgical treatment that neither the appliance nor the surgical treatment will give a good speech after one arrives to an advanced age. I find, however, that I can improve the speech very greatly at any age, but of course the younger the child the more nimble will be the tongue to imitate sounds. I could recite many other cases, and some even



more interesting, perhaps, than these, but will not trespass any further on your time.

Dr. Raymond exhibited the following cases:

(I) Miss H., 28 years old, operated on by one of Boston's renowned surgeons in her early childhood. She was asked to read the announcement of the meeting. Very few of her words, however, could be even understood, her speech being very defective. Dr. Raymond presented this case to prove his assertion that even an early surgical operation does not result in a good speech. This young lady had all the special instruction that could be given her by the best teachers in Boston, but her speech is now even worse than it would have been had she been left alone.

(II) Miss D., now 19 years old, with a congenital cleft in the soft palate, who was fitted to her appliance 4 years ago, came before the meeting and recited a selection showing her greatly improved speech by the mechanical appliance. Every element was so clearly uttered that no one would know that she had any defect whatever. In the young ladies' seminary where she is studying, even her teachers do not recognize anything out of the ordinary. Dr. Raymond had some ladies come from Pennsylvania, and while waiting in the office to see an appliance in the mouth of an older lady who was engaged to come in, this same young lady was present talking all the while, and they were more than surprised when they learned that she had a cleft palate.

(III) Mr. W., 25 years old, with a very wide cleft extending through both hard and soft palate, the opening reaching to within less than half an inch of the front teeth, at the back the opening being 2 inches wide. He has worn an appliance 2 years, and it was here shown that his speech was almost faultless. He is now filling a position which it would have been impossible for him to have filled without his appliance.

#### RABIES: REPORT OF CASES.

BY CHARLES J. PATTON, M.D., CHICAGO, ILL.

*Late Resident Physician Cook County Hospital, Chicago.*

L. F., a French Canadian, age 46, a carpenter by occupation, was admitted to Cook County Hospital at 12.35 P.M. on the 23d of November, 1899. Patient said that he was bitten on the thumb of the right hand 11 weeks before by his own dog, which had been poisoned. The animal was chained up, and in its dying condition was in a highly excited state; he was trying to quiet it when it snapped at him, fastening its teeth just below the base of thumbnail. The dog had shown no dangerous symptoms before the poisoning.

The wound was cauterized and attended to by a physician, but suppuration set in, continuing for some weeks; the nail sloughed off; there was considerable localized pain, and the patient was unable to work during this period. Finally, suppuration ceased, the wound healed, the nail began to grow again, and he returned to work.

About 6 days prior to admission to the hospital he began to have a feeling of uneasiness, was nervous, had chilly sensation, with shooting pains in the body and to a lesser degree in the extremities; he experienced peculiar fits of depression; had to give up his work, but continued to do chores about his house. Following soon after these symptoms recited he complained of difficulty in breathing, a feeling of weight upon the chest with a catching sensation in larynx, a most uncomfortable suffocating symptom, producing a kind of spasm to overcome it. He noted, also, a numbness, beginning first in the hands, extending then to the arms, and gradually over the whole body. For 5 or 6 nights he had been unable to sleep, restless; for about the same length of time he had had difficulty in drinking water if given to him hurriedly, but could take solids; he had, in fact, partaken freely of a supper of meat, potatoes etc., the night before he entered the hospital, and also some bread and cheese the morning of entrance. Bowel movements and urination have been regular.

The patient's wife, who accompanied him, stated that she had been bitten about the same time by the same dog, but had had no abnormal symptoms. A nephew stated that the wife and neighbors had been almost continually talking to, or in the presence of, the patient of the possibilities of what might happen from the bite of a mad dog, until finally the man became so nervous that he could think of nothing else; that when he could be drawn away from these influences and his mind diverted, he acted and talked quite rationally. The patient walked into the hospital; was extremely nervous but fairly rational. His expression denoted great anxiety and fear at times, accompanied by a strange restless motion of eyes. The pupils were somewhat contracted, but responded to light and accommodation. The sclerotics were injected. The mouth was held open and the lips, tongue and pharynx were very dry. The skin was of a dirty straw color, poorly nourished, wrinkled and dry. There was a restless moving about of the arms and legs most of the time. The arms were weak, fingers of right hand could not be flexed or extended; he had more power in the left hand, but this was also weak. He said this condition of the hands had been gradually getting worse. The right thumb—distal phalanx—showed a cicatrix from the bite; he had also two cicatrices upon the back of the right hand which he thought were also result of the dog bite.

Abdominal muscles were tense. Superficial and deep reflexes were markedly impaired. Heat and touch senses were much diminished.

Systolic murmurs in the heart were heard best at apex; first sound hammer-like, pulmonic second sound accentuated; regularity of sounds.

Pulse 96, irregular, compressible but strong; temperature 100.2°; respiration 26; lungs, liver and spleen negative.

Liquids were offered him; if presented quite slowly, and after assuring him that they would

not hurt him, he would take a little, but these attempts were always followed by painful spasms of muscles of the larynx and mouth, and evident distress. If allowed to drink without any preliminary precautions the result was an immediate convulsion. He made complaint if a bright light was brought near, also of feeling draughts of air, although none were apparent to anyone else. The attempt to give him a warm sponge bath in bed had to be desisted from, as it started nervous paroxysms to such a degree that he was nearly uncontrollable from fright.

His family history was unimportant.

*Habits.*—Liquor and tobacco used moderately.

*Previous illnesses.*—Variola when young. Rheumatism many years previous, when he claims to have had some difficulty with hands and legs, which he thinks was somewhat similar to the present state of extremities (?). Chronic winter cough.

*Progress of case while in hospital.*—Treatment at first was directed toward obtaining for him quiet, rest and sleep. Sedatives and narcotics were administered. Relatives were prevented from worrying him, and every effort was made to allay his fears and give him encouragement.

On the evening of Nov. 23 (day of admission) the pulse rose to 104, but dropped to 80 after midnight; the temperature rose to 102°. He took about 1½ cups of milk at intervals. He was delirious the greater part of the night, but would at times lie perfectly still.

About 5 A.M., Nov. 24, slept for about half an hour, and drank a cup of milk at 8 A.M. and some water a little later. Before noon he could not take nourishment by the mouth and was given nutritive enemas. About 6 P.M. he felt better and actually ate a few pieces of meat and bread and drank a little tea from a tube; involuntary urination. The pulse ranged from 100 to 112, temperature about 100°. He slept greater part of the night; was quiet when awake.

Nov. 25, pulse averaged 112, temperature 100.5°, respiration 28. Nutritive enemas continued. About 11 A.M., while the nurse was attending to him, had a very severe convulsion lasting 5 to 10 minutes. Sank back exhausted. Cyanotic; did not rally. Died at 11.30 A.M., with no noticeable increase of paralysis.

An administration of the antidote was not considered, since disease had advanced too far. Apropos of this treatment Professor Wilcox, in White's "Materia Medica," writes: "The reports of the use of the hydrophobia antidote suggest that some of the deaths after treatment may be due to it rather than to the bite. Inasmuch as the incubation period is so variable, the pathological findings so inconstant and the symptoms so diverse, there is some reason for doubting the existence of the disease in man, at least, the majority of cases have been shown to have been those of various diseases. For this reason the antidote possesses but little interest save to those who are interested in spreading hydrophobia — phobia."

At first there was a question as to this case being one of lyssophobia, in view of certain statements in the history combined with the voluntary control the patient was able to bring into action at times in taking food and drink. But close observation soon demonstrated that any improvement was more apparent than real, that he was steadily failing, and that we had an undoubted case of rabies to deal with.

Respecting the fact that the wife, who also was bitten, did not develop the disease, Osler says that only a limited number of those bitten by rabid dogs become affected by the disease; according to Horsley, not more than 15%.

The incubation period in this case approximated the average, which is 6 to 9 weeks.

Two other cases I saw in the same hospital, also died within a short period after admission.

The first was a young man who had been bitten by a dog many months before (I think over six), so long that he had almost forgotten it, when he was rather suddenly seized with spasmodic constriction of the throat muscles. He was perfectly rational all the time in the hospital, clearly realized the situation, and would frequently ask for a drink just to test himself. As soon as he would get it to his lips a spasm would develop to such a degree that he would be thrown from his bed if not held.

The other case was a middle-aged man who attempted to caress a large Newfoundland dog lying quietly before the owner's door; the dog apparently misunderstood his intentions, sprang forward, and bit the man on the face. The wound passed completely through the cheek. It was cauterized by a doctor nearby. The man accepted a settlement from the owner of the dog and thought no more about it. Two weeks later he developed a difficulty in swallowing and a general uneasiness. When he came to the hospital he was staggering along like a drunken man, and as I was examining him for admission I at first thought he was drunk. He, however, was quite clear in mind, and excepting for the feeling of constriction of the throat muscles and a vague uncertainty of gait, said he felt well enough. In testing him with water he showed the characteristic spasm, although he made every effort to control himself.

In every case I have seen, the patient has been fairly rational, and has never attempted to do violence to anyone else. In no case were the dogs supposed to be rabid.

Unfortunately, the case of L. F. came under the jurisdiction of the coroner, and he refused to allow an examination of the cord.

The "rabid tubercle" of Babes is an accumulation of embryonic cells about the large motor cells of the anterior horns of the cord, causing their degeneration. The tubercle more recently described by Van Gehuchten and Nelis occurs in the spinal ganglia, and consists in a proliferation of the endothelial cells of the capsule which encloses the nerve cells, filling up the intercellular space and leading to the atrophy, invasion and necrosis of the nerve cells. When in conjunction with

one or both of these changes is found the perivascular exudation and congestion in the cord and brain, the diagnosis is reasonably established. Where the spinal ganglia can be obtained, Ravenel and McCarthy claim that they offer a simpler and easier method of diagnosis than do the brain or cord.

I have had opportunity lately to study such specimens in connection with some work recently reported by Dr. E. W. Taylor and Dr. Langdon Frothingham at a meeting of the Boston Society of the Medical Sciences. The drawings here reproduced are from a normal spinal ganglion of a

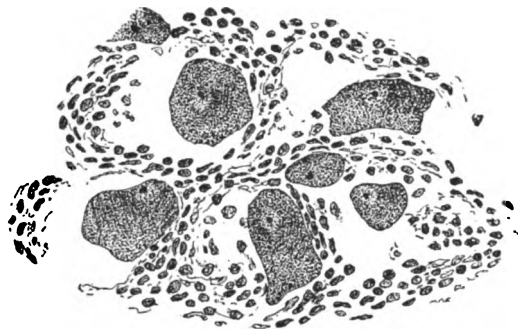


FIG. 1. Normal dorsal root ganglion, dog, showing nerve cells and their relation to the cells of the capsule.

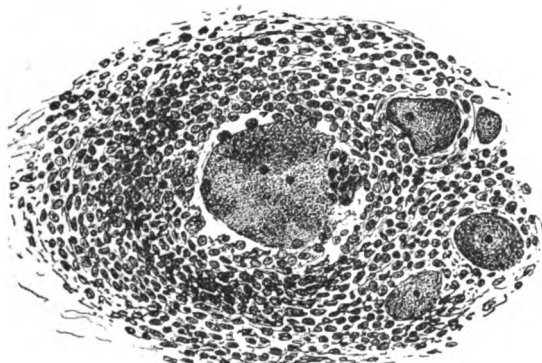


FIG. 2. Pathological dorsal root ganglion, dog, rabies, showing extreme proliferation of cells of the capsule, with accompanying necrosis of a nerve cell: rabic tubercle.

dog and from one taken from an animal suffering from hydrophobia. The changes regarded as typical of rabies are shown in Fig. 2, in which the proliferation of the capsular cells is marked, with the accompanying necrosis of a nerve cell.

An excellent recent résumé of our knowledge of this subject may be found in an article by F. R. Bailey.<sup>1</sup>

DURING 1901, according to a statement in the *Philadelphia Medical Journal*, 32 deaths from tetanus occurred in Baltimore, 26 of them in infants under 21 days of age. In no case did a case of tetanus occur after a vaccination, showing that the vaccine virus used here contained no tetanus germs, as that used in other cities has been claimed to do.

<sup>1</sup> Studies on the Morphology of Ganglion Cells in the Rabbit. *Journal Experimental Medicine*, 1901, v, 549.

## Medical Progress.

### PROGRESS IN THERAPEUTICS.

BY ELLIOTT P. JOSLIN, M.D., BOSTON.

#### ENERGY EXPENDED IN COUGHING.

No one can see a phthisical patient in a spell of coughing without being impressed by the exertion demanded and the prostration which follows. Weiss<sup>1</sup> has calculated the energy required when such a patient coughs once every 15 minutes for a period of 10 hours. He finds this to be equivalent to 250 calories. This is approximately the quantity of nourishment contained in 3 eggs or 2 glasses of milk.

Two factors influence expectoration: (1) The rapidity with which the air is driven out of the lungs, and (2) the resistance which the excretion offers. The first factor is seldom appreciated. Its importance is obvious when one realizes that during violent coughing the rate at which air leaves the chest is 100 metres (300 feet) per second, but in normal expiration it is only 1.25 metres (4 feet). The necessity of lessening cough is plain, especially in laryngitis and pharyngitis, where there is little excretion to be removed, and consequently but little return for the energy expended. Increased rapidity of expulsion of air without increased exertion is obtained in high altitudes because of the low barometric pressure, and the consequent diminution of resistance to the expired air.

The other factor upon which the work of coughing depends is the difficulty which is encountered in the removal of tenacious sputum. Moisture in the air lessens this somewhat, and this can be favored by having moist cloths in the sick-room in the summer or a pot of boiling water in the winter.

A considerable amount of energy is lost by patients in coughing. Such patients will lose weight unless especial attention is paid to the diet.

#### TANNOFORM IN THE NIGHT SWEATS OF PHTHISIS.

Nolda reports 12 cases in which he used the drug. In 8 cases with pronounced sweating 7 were entirely relieved and he noted marked improvement in the remaining patient. Three to five applications sufficed as a rule. The temperature, curiously (?) enough, in 3 of 4 other cases returned to normal and the night sweats ceased, though the other well-known internal and external remedies had been previously tried in vain. Tannoform is a combination of tannic acid and formaldehyde. It should be dusted over the chest each night, mixed with an inert powder 1:3, and washed off in the morning.

#### SYMPTOMATIC TREATMENT OF COUGH.

It is ideal to treat the cause of the cough, but in very many cases this is impossible or impracticable. Under such circumstances Sænger<sup>2</sup> rec-

<sup>1</sup> Therap. Monats., 1901, p. 376.

<sup>2</sup> Loc. cit., 1901, page 359.

ommends inhalation of menthol. Sufficient fumes can be obtained by evaporating a few menthol crystals in a spoon over a small flame. Another method is to rub 10 to 20 drops of a 40 to 50% alcoholic solution between the hands and then hold these before the face inhaling the air through them. The menthol may cause at first increased irritation of the respiratory passages, but this soon subsides to be succeeded by the sedative and benumbing effect of the menthol on the mucous membrane. It is essential that overlying secretion should be removed before the menthol can produce the desired effect. This is brought about by the irritation and coughing which ensue when the strong menthol fumes are first inhaled or when a 10 to 20% solution of menthol in olive oil is sprayed into the throat. The advantage of menthol lies in the fact that it frees the patient from cough for several hours and obviates a resort to morphin and its derivatives.

#### CINNAMIC ACID IN PULMONARY TUBERCULOSIS.

Staubb<sup>2</sup> reports 20 cases of pulmonary tuberculosis treated with cinnamic acid. Except for a possible tendency to the production of hemoptysis he considers the remedy harmless but useless. [This coincides with the general opinion today.]

#### FLOOR INFECTION OF YOUNG CHILDREN WITH TUBERCULOSIS.

Dieudonne<sup>4</sup> examined the hands and nose of 15 children, 6 to 30 months of age, whose parents were tuberculous and poor. Tubercle bacilli were found on the hands of two and in the nose of a third child. This is a practical illustration of the dangers of infection, and forcibly suggests the need of hygienic measures.

#### PROPHYLAXIS AGAINST TUBERCULOSIS AND THE ISOLATION OF PHTHISICAL PATIENTS.

Fränkel<sup>5</sup> believes that our attitude concerning food should not be altered even if Koch's suspicion of the difference between bovine and human tuberculosis proves correct. He agrees with Koch that the isolation of phthisical patients is of the utmost importance, since the possibility of the dissemination of the disease by the particles of sputum, scattered in the breathing, coughing and sneezing of tuberculous patients, is a great source of danger. It is the greatest exception for phthisical patients to hold a handkerchief before the mouth while coughing, and their relatives and fellow-workmen are too indolent to enforce protective rules. Several experiments on rabbits show how great the danger is. After these had been kept for a long time in a ward of the *Charité* with good food, they succumbed to tuberculosis, although sputum cups were used by all the patients. The surest method, therefore, for the restriction of the extension of tuberculosis is the isolation of the patients. Fränkel recommends that asylums be built in wooded regions free from dust. In these

places the cases not bedridden could be cared for, while there could be a hospital for the desperate cases in the neighborhood. Entrance should be voluntary. These asylums need not interfere with the present sanatoria. In these latter, in Germany, 4,000 tuberculous patients are cured yearly, and as each phthisical patient infects probably at least one other a year, at the end of 5 years there should be 40,000 less tuberculous patients. With 8,000 patients in asylums disease would be so much more restricted.

#### ASPIRIN IN PLEURISY WITH EFFUSION.

Aspirin<sup>6</sup> has apparently come to stay. It works well in rheumatism, neuralgia and headache. In the experience of the reviewer the dose need not be so large as that of sodium salicylate. v. Ssa-weljew recommends it in pleurisy with effusion, especially because it is less irritating to the stomach. The patient took 4 gm. (60 gr.) daily for 9 days without harmful results. During this time the urine increased in quantity, although the patient perspired, and the exudation was absorbed.

#### HEROIN IN CARDIAC DISEASE.

Lévy<sup>7</sup> has used heroin in a series of cases of cardiac dyspnea instead of morphin. He prescribed 3 times daily .004 gm. ( $\frac{1}{25}$  gr.) heroin for a man 60 years of age, with advanced arteriosclerosis. The man had had severe dyspnea when walking a few steps quickly, and stabbing pains in the heart. Two doses of the heroin allowed him to breathe more freely and walk more rapidly without discomfort. The patient continued to use heroin for 7 months, 2 or 3 doses daily, without any loss of effect. This is in contrast to the action of morphin, and for this reason, as well as for its prompter action in stopping cough, Lévy recommends its use.

#### DIETETIC PRINCIPLES IN THE TREATMENT OF GASTRIC DISORDERS.

Strauss<sup>8</sup> recommends in motor insufficiency the transitory use of a pure albuminous diet. He expresses his preference in the permanent treatment for a milk fat diet over one rich in carbohydrates, especially in those cases complicated with hypersecretion.

In cases of marked subacidity the food must be finely divided and of soup-like consistency. Soups or sauces made from meat extracts can here be used to advantage because they favor the secretion of gastric juice.

Fat is the mainstay in the treatment of hyperacidity, because it directly lowers the gastric secretion. But a distinction is to be drawn between the easily digested butter, cream, rich milk, emulsion of almond oil and some other oils, and the fat in bacon and fatty meats. He gives these patients bland and unirritating soups, such as those made with meal, milk or fruit. He warns against the soups rich in extractives because of their stim-

<sup>2</sup> Review in *Therapeutic Monthly*, 1901, p. 221.

<sup>4</sup> Loc. cit., 1901, p. 221.

<sup>5</sup> Rev. in *Centrbl. f. Inn. Med.*, 1901, p. 1155.

<sup>6</sup> Rev. in *Centrbl. f. Inn. Med.*, 1901, p. 1056.

<sup>7</sup> Loc. cit., 1901, p. 1060.

<sup>8</sup> Loc. cit., 1901, p. 1203.

ulating action on the gastric mucosa. Meats as free as possible from extractives, or eggs prepared with a great deal of butter, form the second course, together with thoroughly cooked vegetables also rich in butter. Sweets are prohibited only in case the patient feels they are not well-borne. A cheese rich in fat serves as dessert. Oatmeal, cocoa with cream, hygiama with cream, or milk with or without cream, are recommended if coffee and tea are not well borne.

#### THE INFLUENCE OF SUGAR, ATROPIN AND MORPHIN ON THE EXCRETION OF GASTRIC JUICE.

Pawlow has contributed much to our knowledge of the secretion of the gastric juice by his experiments on animals. Instead of studying the functions of the stomach in the old way, by making a simple fistula, he has devised a means which enables him to collect the gastric secretion free from admixture with food or saliva. Starting out with the supposition that the vagus nerve controlled the flow of gastric juice, he planned in his operation to preserve this intact. He managed to do this as follows: The stomach was divided by a longitudinal section into two parts parallel to the branches of the vagus nerve. These two "stomachs" were sewed up independently, the one communicating by the pylorus with the intestine, the other by a small opening with the abdominal wall. They were separated by layers of mucous membrane alone at the dividing partition, but elsewhere were united by a bridge of muscle which enclosed the branches of the vagus.

Processes which took place unhindered in the larger stomach could be studied by observing what occurred in the smaller. It was shown that the mere sight of food or mastication of food without its being swallowed were enough to make the stomach secrete—quite as the mouth waters at the sight or thought of some delicious viand. Further, the secretion varied with the chemical quality of the food, adapting itself to the various kinds of nourishment. In contrast to the old idea that the gastric juice was a constant factor, he showed it was variable.

Riegel was the first to apply this new knowledge clinically. He argued that if the vagus nerve controlled the gastric secretion, atropin, which is a vagus depressant, should decrease this secretion. This proved to be the case, and he demonstrated its utility in cases of hypersecretion, hyperacidity, and in those cases of spastic cramps of the pylorus caused by these conditions. Moreover, he was able to show experimentally that pilocarpin—the antagonist of atropin—had quite the opposite effect on the stomach. Pilocarpin, unfortunately, is not adapted to clinical use.

Selinc, Strauss and Aldor studied the effect of sugar on the excretion of gastric juice. They found that when 4 oz. were given at one time in a concentrated solution, the amount of hydrochloric acid was diminished. The importance of this observation led Clemm to investigate this question in dogs with a Pawlow fistula. They were given a 20% solution of dextrose in a litre of milk. The

effect was striking. The gastric secretion was delayed 1 to 4 hours, the total quantity was decreased one-half, and the free hydrochloric acid as well as the total acidity was lowered 10%.

The bearing of these experiments on the treatment of hyperacidity is obvious.

#### MORPHIN.

Riegel's experiments on human beings and animals prove conclusively that morphin does not diminish the excretion of gastric juice. It matters little whether the morphin is given internally, subcutaneously or by suppositories, its action is the same. It is a stimulant to, rather than a depressant of, the gastric secretion. Given continuously it loses some of its stimulating action, but it never essentially lowers the gastric secretion. Riegel therefore concludes that we should confine the use of morphin in gastric disorders to those cases in which an increased secretion of gastric juice will do no harm. For pain in the stomach due to excessive gastric secretion, atropin, not morphin, is indicated.

#### VALUE AND EXPLANATION OF BLEEDING IN UREMIA.

Walko publishes the results of venesection in uremia in v. Jaksch's clinic. In the majority of the cases there was a striking disappearance of the uremic symptoms after bleeding, and this was accompanied by copious diuresis, profuse perspiration and diminution in the quantity of the albumin. These favorable results were almost wholly confined to uremia in acute nephritis and acute exacerbations of chronic forms. Blood-letting in the uremia due to advanced chronic nephritis was either of no avail or simply of transient effect.

Various explanations have been offered for the improvement:

(1) The removal of toxic substances from the blood during the venesection seems unlikely, because only  $\frac{1}{20}$  to  $\frac{1}{30}$  of the total quantity of the blood is withdrawn. Improvement should take place in chronic cases as well as in acute, if this explanation was correct.

(2) Changes in osmotic pressure are produced by venesection. When specified quantities of concentrated salt solution are injected into animals, general convulsions ensue. Koranyi showed that osmotic pressure was increased by the retention of dissolved molecules. This would form a physical basis for difficulty in the excretion of water by the skin and lungs in renal insufficiency. This explanation appeared all the more plausible because Lindeman showed that the blood serum in patients with renal disease was of normal concentration, but as soon as uremic symptoms appeared, the concentration increased, and there was a consequent rise of osmotic pressure. Attractive as this theory is, evidence has accumulated against it. In the first place, Richter showed that venesection in normal individuals did not lower the concentration of the blood, and in the second instance, Walko demonstrated that the change in the molecular concentration of the blood during

intervals of uremia and intervals free from uremia was too slight to account for the symptoms.

(3) Lowering of the blood pressure has been urged as an explanation, but it is not of constant occurrence.

(4) The most satisfactory explanation appears to be the following: In uremia there is a vasomotor constriction of the vessels of the kidney. Experiments show that such a condition leads to slowing of the renal circulation. The removal of a quantity of blood relieves the vascular cramp in the kidneys, and the circulation and consequent diuresis go on more freely. The increased flow of urine frees the blood and urine of retained products.

The narrowing of the renal vessels is not simply due to vasomotor action, but is partly mechanical. The inflammatory processes in the kidney, the hyperemia and exudation by counterpressure against the capsule, all tend to constrict the glomerular vessels. These unfavorable conditions are relieved in a measure by venesection in acute nephritis, but in chronic nephritis it is obvious that venesection could have little effect.

#### THE DIETETIC TREATMENT OF EPILEPSY.

Balint recommends a diet which contains very little chlorin on account of the excellent results which he has obtained by its use. The diet is as follows: One to one and one-half litres of milk, 40-50 gm. ( $1\frac{1}{2}$  to  $1\frac{3}{4}$  oz.) of butter, 3 eggs (unsalted), 300-400 gm. (10 to 13 oz.) bread and fruit. This diet contains 2300 to 2400 calories, but in it there is little more than 2 gm. of sodium chloride. In addition the patient received 3 gm. (45 gr.) of bromide. This was put into the bread instead of common salt. Balint reaches the following conclusions:

(1) A diet deficient in chlorin is applicable and worthy of trial in all cases of epilepsy.

(2) Treatment is best carried on in an institution.

(3) Besides the diet, administer small doses 2 to 3 gm. (30 to 45 gr.) of bromides.

(4) The introduction of bromides into the food, especially in bread, instead of salt, is to be recommended on account of the agreeable manner of administration.

(5) The favorable action of the treatment consists chiefly in the striking increase in the sedative action of the bromide, and should therefore, in Balint's opinion, be tried in other nervous diseases in which large doses of bromides are indicated.

#### GENERAL CONVULSIVE TIC TREATED AND CURED BY RESPIRATORY GYMNASICS.

Pitres<sup>9</sup> reports the case of a young man of 20 who, since his ninth year, suffered with spells of severe twitching. These spread like electric shocks from the head to the limbs, and were accompanied by involuntary crying or *stöhnen*. The attacks, which might be termed Bergeron-Henoch's electric chorea, did not prevent the pa-

tient's eating and sleeping, but by their frequency made him incapable of any work. Pitres observed that the attacks diminished in number and severity when the patient sang, counted out loud or breathed slowly and deeply. Consequently he tried treatment with respiratory gymnastics, especially since attempts with hypnotism were in vain. The patient was directed to take long breaths 3 times daily for periods of 10 minutes each, all the time with his back against the wall. Improvement began at once. After a month the patient was discharged and continued the treatment at home, and with such good results that 8 months later he was completely cured.

No other treatment was employed. The heredity of the patient was in no way neuropathic. He was said to have contracted his disease as a child in consequence of a severe fright.

#### TETANUS ANTITOXIN.

Reports in general point to its inefficacy. It is practically impossible to employ it early enough in the disease. Thirty hours from the onset of the first symptoms was the limit first set by Behring, but this appears to be too long an interval. Dönitz infected animals with splinters containing tetanus spores, and then injected the antitoxin immediately on the appearance of spasms. Yet he was able to save but a half of the animals, and these were the animals who had the disease in the lightest form.

Möller,<sup>10</sup> however, after reviewing the whole question, considers it the duty of the physician to use the antitoxin at once and in adequate amount in all cases of tetanus. Toxins still forming in the body may thus be neutralized, and their action not added to that of the toxins already present. Cases in which the fatal dose has just been reached or exceeded may be decidedly influenced.

The antitoxin is valuable in prophylaxis. In the present state of our knowledge the doctor who neglects its use in the treatment of badly infected wounds assumes a heavy responsibility. Tetanus antitoxin has been used in this way with most favorable results in many surgical clinics.

### Reports of Societies.

#### SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. B. LUND, M.D., SECRETARY.

REGULAR meeting Nov. 6, 1901, Dr. F. S. Watson in the chair.

GEORGE A. RAYMOND, D.M.D., read a paper on THE TREATMENT OF CONGENITAL CLEFT PALATE BY MECHANICAL APPLIANCES.<sup>1</sup>

DR. C. A. PORTER: I have brought the report of 6 cases<sup>2</sup> upon which I have operated success-

<sup>10</sup> Deutsch. Med. Woch., 1901, p. 814.

<sup>1</sup> See page 138 of the Journal.

<sup>2</sup> See page 136 of the Journal.

<sup>9</sup> Rev. in Centrbl. f. inn. Med., 1901, p. 1134.



fully, but if the appliance is going to supersede all operations, a great deal of the interest is taken out of them. One criticism I think it is fair to make—that these cases which have had obturators have probably received much more careful training than the cases operated upon. The majority of surgeons perform the operation on hospital patients, and after they are discharged see very little of them. I read an interesting paper in the *Journal* recently, showing that a great deal of the subsequent trouble with speech came from adhesions about the soft palate, which had not been rendered pliable by manipulation and massage, and active and passive motion. Certain exercises could be given for raising the palate as one would do for an atrophic muscle elsewhere, and the mother could be taught to massage the palate until it became movable. Until it has been proved conclusively that the surgical results, after this form of treatment has been carried out, are not as good as those following the use of the obturator, it seems to me we still have the right to try what we may do by the operation, for, if necessary, it would be a simple matter to destroy what has been done by the surgeon and replace it by a plate.

DR. C. B. PORTER: I still hold to the opinion I have expressed a number of times. I believe there is a large class of cases that should be operated upon that cannot, perhaps, obtain the appliances which have been recommended tonight. It seems to me that very poor people are better off to be freed from the rhinitis which is sure to follow and be developed sooner or later in all cases where the soft palate is wanting, and that can be done by approximating the edges, even if the speech is not much improved. Tonight we have seen a most beautiful exhibition of what the appliance will give; but I think Dr. Fillebrown will remember at the symposium some years ago, when the surgeons and the dentists showed cases, each was willing to say they were no longer wanted if the other could achieve such good results. At that time I showed a young lady who had been taught to speak after the operation, and spoke as distinctly as one could possibly wish. I had a letter from the mother of a child in a distant state, stating that for the first few years after the operation was done she taught her son at home because she did not want to have people know he had had a cleft palate, but he was now in school with others of his own age and no one knew of his previous deformity.

DR. FILLEBROWN: The broad statement is made in the paper that the surgical operation is not a success physiologically. I will say that I can produce cases of my own, of Dr. Porter's and others, that I think no one can identify by their speech. I did a cleft 2 years ago for a young man 16 years old. The cleft involved both hard and soft palate clear forward almost to the lateral incisor teeth, indeed, the alveolar process was not quite perfect itself, and there was a small notch in the lip. The sutures were removed in 8 days and I sent him to visit several of my professional

friends. I had a phonographic record taken of his speech before he left town which will verify my statement. He was one of 300 boys attending the Good Will Farm School in Fairfield, Me. After his return to school the editor of the *Good Will Farm Record* published an article saying: "Before the operation he could make himself understood only with difficulty, and it was supposed that he must go through life at a great disadvantage. All this is changed, and a stranger who would come to the farm and see all our boys or hear them talk, would not know that one of them had ever been so unfortunate." His speech was as perfect as though he had been born with a normal palate. Another patient, one of Dr. Gordon's of Portland, whom this society has heard read and speak, when I found her had lived 8 years at her present residence and not an individual had ever mistrusted she had ever had any trouble. She was one of the best speakers and readers in the Roxbury High School. Another case is one of Dr. Porter's. He speaks not so perfectly as the other 2 referred to, but yet quite as perfectly as either of the other patients shown tonight.

There are 2 classes of cases. One of them can be remedied perfectly well surgically. There are some few that cannot. I should say by the extent of the cleft in the mouth of the gentleman who spoke tonight it would be impossible to remedy that surgically. I have had 3 or 4 patients come into my hands who have been wearing plates, who could not get along with them. The artificial velum irritated the throat, and they could not improve their speech with them at all. One was 35 years old when I operated on her mouth. She had tried to wear a plate but could not; her speech was very bad, so bad she would not appear in company, had become a recluse; today she is going about in society with perfect ease, and there are only one or two sounds but what she gets very nicely indeed. All cases where plates are made are not successful. One patient who has consulted me and who intends to have something done, wears a plate made by one of the best operators in the country, and has had the best of instruction, but still her speech is very disagreeable and her articulation very faulty.

There is only one other point I wish to notice: The essayist of the evening and myself have come to quite different conclusions about the office of the soft palate. As I understand, all the vowel sounds are made with the palate open. A very few consonant sounds require the palate back, as b, d, p, s, t. Any person who attempts to give the vowel sounds with the palate back, produces a harsh, bad sound. I have given a good deal of attention to the physiology of vocalism, and am perfectly sure that this is the case, and that the open palate is needed to give full vent to the vibrations out through the nasal passages, else a poor voice and a perpetual sore throat are results. I think if the gentleman will examine the matter a little more closely he will find his physiology a little at fault, in that direction.



I congratulate the community on the fact that there can be such perfect appliances made, and patients can get such benefit from them, for there are a good many who choose not to have surgical operations even if they can, and for that reason we are grateful that such can be made; but the statement that perfectly physiological results cannot be obtained with a surgical operation is absolutely without foundation. I hope the gentleman in the future will make his statements in accordance with facts, because we can demonstrate them.

DR. J. T. BOTTOMLEY read a paper on

#### ABDOMINAL CONTUSIONS.

DR. WATSON: I am interested to find that the data presented by Dr. Bottomley are in the main in accord with those from other sources, since they give more weight to the inferences already drawn from the discussion of such as we have access to, and in a matter which is thus far rather deficient in the number of its well-recorded observations.

In the discussion of this subject of abdominal contusions with and without intra-abdominal associated injuries, which occurred at the French Surgical Congress in 1897, there was practically agreement as to certain points which Dr. Bottomley's communication contains, one of them being the failure of cases of abdominal contusions with concurrent severe injuries to the abdominal viscera, to present symptoms which can be taken as sufficiently characteristic or constant to warrant a confident diagnosis. As he has shown tonight, there are cases of rupture of the intestine attended from the start by the most violent symptoms of peritoneal injury and subsequent infection ending fatally,—that is to say, the evidence that we consider typical of that condition;—on the other hand, cases of the same internal injury, in which the symptoms are either so mild or few, or even absent, that they offer nothing characteristic, or too little to seem to call for surgical interference, and sometimes are not thought to be of enough importance to be mentioned by the patient at the time. The lack of characteristic features, the deceptive mildness, and the great variation are then conspicuous and often most misleading in abdominal contusions. It is also true, as has been pointed out, that severe and apparently characteristic symptoms of rupture of the intestine may occur in its absence and in the absence of any other intra-abdominal lesion that can be discovered.

The following are some of the features of these cases which seem to me to be especially interesting and important to be noted: The absence of external injury, which has been frequently reported. The slight force required in some cases to rupture the bowel, two striking examples of which are offered by the cases of Wiggin of New York and Buchanan of Pittsfield. Dr. Wiggin, it should be said, in a second case, performed the first successful operation for ruptured intestine from contusion done in this country, in 1890, and the second that is recorded. In this case the pa-

tient was kicked by a calf, and thought so little of it that he continued his work and did not mention it at the time. He had no sign of trouble that evening or on the following day, in which he went to church in the morning and again in the evening, and felt perfectly well until he was seized with violent pain while there, some 30 hours after the accident.

In Dr. Buchanan's case a man was struck by the handle of a long pair of tongs with which he was carrying something. The blow was, he thought, of no consequence, but it had ruptured the bowel, as was seen at the time of operation, which, by the way, was performed on the strength of two symptoms only: absence of peristalsis and rigidity of the anterior abdominal muscles.

Next is the delay in the appearance of symptoms, showing that it is not safe to assume that there is no danger from an abdominal contusion until a considerable interval has passed. The interval has extended even to more than a fortnight in some cases. This delay is, in many cases, explained by the nature of the lesion; for example, the intestine may be bruised sufficiently to slough later, or when there has been an injury involving the mesenteric blood vessels, there may be an interval before localized necrosis of the gut takes place. Or, again, embolism may result from such an injury, and secondary hemorrhage follow at a variable period from the receipt of the traumatism. Finally, the rupture may not have been complete in the first instance, but become so subsequently.

The conditions which determine the occurrence of the visceral lesion are interesting also. Presumably tenseness of the abdominal muscles is one of the chief safeguards against it; to this and their strength of muscle is due the usual immunity of football players and prize fighters, for example, else we should find it to be one of the commonest of accidents. Another illustration of the protection afforded in this way is found in what was a frequent custom with boys, at any rate when I was one, of making the abdominal wall tense and then inviting a comrade to deliver as hard a blow of the fist upon the epigastrium as he could strike, which never, to my knowledge, resulted in any harm. This suggestion is also strengthened by some experiments of Demons, who found in cadavers with rigor mortis, a blow of great force was required to rupture the intestine, while a moderate one sufficed when the abdominal wall was relaxed. Then, of course, the direction of the blow has some influence upon the result. Another factor tending to intestinal rupture is, of course, the condition of the intestine, rupture being much more probable if the bowel is distended, especially if there be a narrow outlet to a distended loop, such as might result from adhesions. Fixation by adhesions of the viscera also favors rupture.

With regard to the treatment of these cases there are two important things to be noted: Not to be deceived by the apparent triviality of the injury, but to keep the patient under observation and at rest, and to be ready to operate at once if

symptoms do arise later; and when there are any strongly suggestive symptoms at first to do an exploratory laparotomy promptly, except in cases of severe shock, when — unless it is thought that they are due to hemorrhage — it is better to wait a short time for reaction to set in. These are practically the unanimous conclusions of those surgeons who have had any experience with abdominal contusions, and accord with those presented in the excellent paper of the reader tonight.

### Recent Literature.

*A System of Physiologic Therapeutics.* A Practical Exposition of the Methods, Other than Drug-Giving, Useful in the Prevention of Disease and in the Treatment of the Sick. Edited by SOLOMON SOLIS COHEN, A.M., M.D., Professor of Medicine and Therapeutics in the Philadelphia Polyclinic; Lecturer on Clinical Medicine at Jefferson Medical College; Physician to the Philadelphia Hospital, etc. Vol. III — Climatology: Health Resorts, Mineral Springs. By F. PARKES WEBER, M.A., M.D., F.R.C.P. (Lond.), Physician to the German Hospital, Dalston; Assistant Physician North London Hospital for Consumption, etc. With the Collaboration for America of GUY HINSDALE, A.M., M.D., Secretary of the American Climatological Association, etc. In two books: Book I: Principles of Climatotherapy; Ocean Voyages; Mediterranean, European and British Health Resorts. Book II: Mineral Springs, Therapeutics, etc. Illustrated with maps. Philadelphia: P. Blakiston's Son & Co. 1901.

These are the third and fourth volumes of Cohen's "System of Physiologic Therapeutics," a work upon which we have already commented. The first part treats of climate, describing the fundamental principles that underlie the application of climates, health resorts and mineral springs in the prevention and treatment of disease. The second part describes health resorts, and the third part discusses in detail the special climatic treatment of various diseases and different classes of patients. Book II also describes the health resorts in Africa, Asia, Australasia and America.

In Book I ocean voyages are considered in detail, and their advantages and disadvantages, indications and counter-indications, as a therapeutic measure, are pointed out. The subject of altitude is treated in a similarly full and definite manner, and the question is discussed as to what classes of patients and disorders are benefited, for example, by Alpine and Rocky Mountain climates. The difference between summer and winter climates in Switzerland and the therapeutic indications for the different seasons are discussed at length. In addition, the seacoast and inland health resorts of the Mediterranean countries, those of Continental Europe and those of the

British Islands, including mountain stations of various elevations, plains and mineral water spas, are succinctly described.

These two volumes are most worthy successors of those which have preceded; they are full of the information which physicians and laymen alike are constantly needing. This is particularly true now that traveling to distant places in search of health or recreation has become so universal a custom. We see no reason to alter our first favorable impression of the timeliness and excellence of this series of books.

*Anatomy in its Relation to Art.* By GEORGE MCCLELLAN, M.D., Professor of Anatomy at the Pennsylvania Academy of Fine Arts, etc., etc.; Author of "McClellan's Regional Anatomy," and the "Anatomy of Children." Illustrated by 338 original drawings and photographs made by the author, and expressly prepared for this work. A quarto of 142 pp. Philadelphia and London: W. B. Saunders & Co. 1901.

It is a daring venture to bring out another book on art anatomy when so many excellent works, such as Duval, Marshall, Rimmer, Richet, and numberless others are already in the field, and yet, when one sees what the author has to show and to say, he will be forced to consider him more than justified in doing so. The author tells us that an experience of 12 years in studying and teaching his subject has given him special knowledge as to the needs of art students, and in the work now before us, he proves conclusively that he knows how the subject should be best presented to them.

The book is arranged for the most part on thoroughly new lines. Many of the old ideas as to what an art anatomy should be have apparently been entirely discarded, and the author has built up this structure almost, if not wholly, from his own original ideas. His principal object is "to contribute to that knowledge of human anatomy with which artists are chiefly concerned," and not to give more than passing attention to the deeper parts, except so far as they may influence external form. He declares that dissecting-room knowledge is *not necessary* for the art student, and, in fact, that too much anatomical information is apt to mislead him into exaggerations. He evidently believes that anatomy should be taught to art students simply for the purpose of increasing their powers of observation, and making them understand more intelligently the living form in all its positions, motions and ever-changing surface contour.

In order to accomplish this object he brings out this book, which contains a great number of most excellent large-sized photographs, drawings, etc., with a minimum of text. From the latter he omits all technical phraseology that can be dispensed with. He recognizes that ancient sculpture owes its excellence largely to the great perfection in the living models and the frequent opportunity for studying them, and for this very good reason has freely made use of photographs

of two selected models, a male and a female, which are in his judgment as perfect in form and grace as can be found.

The man model is 24 years old, his height is 5 feet 8 inches, and his weight 145 lbs. His form is manly and strong, but not unduly muscular, and therefore well suited for artistic study. His stature is, according to classical standards, nearly perfect, as he is 8 heads high and the measurement from finger tips to finger tips of his outstretched arms is just equal to his height.

The female model is 23 years old, and is well and gracefully proportioned, except for the breasts, which lack the appearance of maturity. Her height is 5 feet 4½ inches, which being equal to 7½ heads in height, is the (generally accepted) proper proportion for a woman.

These models appear throughout the book in different positions and attitudes, sometimes alone, and sometimes, for purposes of comparison, placed beside an anatomical figure (bony or muscular) which has the same position. From time to time one of the models appears beside a photograph from the cast of some antique statue, the model assuming the exact pose of the statue. These poses of the model are most skilfully taken, though naturally they appear somewhat strained beside the statues.

The purely anatomical plates are from drawings made by the author, and are entirely satisfactory for the purpose in hand in respect to clearness, accuracy and detail.

With each new group of anatomical facts comes the opportunity to apply them to the living body, and to make them at once of practical value.

The author of this beautiful volume may well be proud of his work. Little can be said in the way of adverse criticism. It is a question whether such a knowledge of the individual bones of the skull, as the author evidently thinks necessary, can be of great use to the art student, while a few illustrations of certain familiar peculiarities of the body—even though they be deformities—might have been shown in illustration to help him appreciate the directions in which Nature sees fit occasionally to deviate from the normal standard. These, however, are small considerations which do not detract from the value of the book as a whole—a book which, probably for originality in arrangement, beauty and truth of illustrations, and, finally, for practical value to the student of art, cannot be excelled by any work which has thus far been published.

*A Practical Guide to the Administration of Anesthetics.* By R. J. PROBYN-WILLIAMS, M.D., Senior Anesthetist and Instructor in Anesthetics at the London Hospital; Lecturer on Anesthetics at the London Hospital Medical College; Assistant Anesthetist at the Dental Hospital of London. London, New York and Bombay: Longmans, Green & Co. 1901.

The book is concise, conservative and sufficiently comprehensive. In the brief preface, the author states: "It is with the object of supplying all the

essential points (of anesthetics) in as small a form as possible, and not with the idea of rivaling the larger manuals, that I have written this little book in the hope that it may meet the needs of students, and be read by them." The intention to make it a students' manual is apparent throughout, and is maintained to the end of its 200 pages.

The book possesses a distinct literary style, too often absent in medical works. The sentences are brief, the words short and well chosen, and grammatical errors are rare. The arrangement of its eight chapters is good. General Considerations (I) and Difficulties and Dangers (II) precede the discussion of Gas; Gas and Oxygen (III), Ether, Gas and Ether (IV), Chloroform (V), and Mixtures (VI), Choice of Anesthetics (VII), and Local Anesthesia (VIII), complete the volume. Ether, on the whole, is the anesthetic of choice. Many forms of inhalers are described, for gas, gas and ether, ether alone, and chloroform. Bennett's gas-ether apparatus is omitted. The chapter on Local Anesthesia is too much curtailed, and the Corning-Bier method of spinal anesthesia is dismissed in eight lines, with the remark that "no record of the use of this method in this country has as yet been published." The book is dated September, 1901, so that a fair idea of English conservatism may be gained from these concluding lines.

In spite of minor defects, the book is undoubtedly one of the very best that has appeared upon this subject for students and for general practitioners.

*A Manual of the Practice of Medicine.* By FREDERICK TAYLOR, M.D., F.R.C.P., Senior Physician to, and Lecturer on Medicine at, Guy's Hospital; Consulting Physician to the Evelina Hospital for Sick Children; Examiner in Medicine at the University of London; Late Examiner in Medicine at the University of Durham and to the Royal College of Physicians, and in Materia Medica and Pharmaceutical Chemistry at the University of London. Sixth edition. Pp. 1028. Philadelphia: P. Blakiston's Son & Co. 1901.

We have already commented favorably upon this condensed manual of medical practice. It has reached its sixth edition after a general revision of the text and the addition of a certain amount of new matter. The nervous system, the skin, and to a slight degree the throat, are considered in the text. The book offers an example both of the desirability and the extreme difficulty of including in one volume the extending field of so-called general medicine. As a brief outline and a ready book of reference the volume should retain its place of favor. It is clearly printed, well indexed, and contains very few illustrations.

A VIVISECTION BILL IN CONGRESS.—Senator Gallinger has introduced in the Senate a bill prepared by the American Society for the Regulation of Vivisection, for the regulation of vivisection.—*N. Y. Medical Journal.*

THE BOSTON  
**Medical and Surgical Journal.**

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MR. JOHN D. ROCKEFELLER'S GIFT TO  
HARVARD UNIVERSITY.

Just seven months ago we had the pleasant editorial task of recording and commenting upon Mr. J. P. Morgan's gift to Harvard University, for its new Medical School buildings, and this week we find a similar agreeable duty imposed upon us by the announcement that Mr. Rockefeller proposes to offer Harvard University \$1,000,000 to aid in carrying to completion this same project. Mr. Morgan's gift of something more than \$1,000,000 was for the erection of three of the five new buildings as previously planned for upon the new territory of twenty-six acres which had previously been secured by friends of the Medical School for this and kindred purposes. As we understand it, Mr. Rockefeller's gift may be used for buildings or for endowment, and is to be accompanied by the stipulation that something in the neighborhood of \$500,000 additional should be raised for these purposes by other contributors. We understand that between \$190,000 and \$200,000 towards this sum has already been promised within the last four or five days — among the large givers being some of the instructors in the Medical School itself.

We are inclined to classify a movement of this kind among the infectious and contagious diseases, and to express the hope that this particular epidemic may prove to be dependent upon a peculiarly virulent virus.

The whole movement up to the present is a gratifying example of the wisdom embodied in the old saw that the Lord helps those who help themselves. This scheme for the enlargement and development of the Medical School of the university was conceived several years ago, as a result of careful study of the problems and necessities then presenting or threatening to present themselves. It was conceived in a large and

generous spirit, with a just appreciation of the claims of the future; it has been adhered to with pertinacity, and its progenitors and sponsors are now justly fortunate in reaching so soon a period of unusual prosperity which enables men of large means and of a large comprehension of what is for the world's welfare to give greatly of the fruits of this prosperity and of their abundance. It is also a source of congratulation that such a plant should be assured at a time when such funds as those of the Rockefeller Institute and of the Carnegie University are about to become available for medical and other scientific research.

Dr. J. C. Warren, chairman of the Advisory Committee on New Buildings of the Harvard Medical School Faculty, and his colleague, Dr. H. P. Bowditch, were most active in this whole project. They were instrumental in interesting Mr. Morgan in it, and with the most useful co-operation of Dr. W. B. Coley of New York, a graduate of the school, secured from Mr. Rockefeller, after a very careful and detailed study on his part, that evidence of his practical approval of their plan which is now made public. The "plant," as proposed, is unquestionably a very large one; the "working capital" should be amply proportionate.

The tract of land which has been secured contains in all twenty-six acres. In addition to the land required for the Medical School there is room for a new dental school building, for which funds are about to be solicited. Beyond this there will remain thirteen to fifteen acres which there is good reason to hope may become the site of one or more hospitals, which should before long be realized from funds soon to become available for such objects.

A FUND FOR THE STUDY OF CHRONIC  
DISEASE.

WE note in another column the gift of the sum of \$50,000 from the late Ellen O. Proctor to the Harvard Medical School for the prosecution of research in chronic disease. In more than one respect this is a most noteworthy bequest. It marks a tendency, which is gradually gaining force, to endow medical schools and that for which medical schools should stand — research. We have before commented on the great and increasing necessity for proper buildings and equipment in which, and by which, to carry on medical study, and have also expressed a mild warning that this should not be the sole aim of our endeavors. The buildings are necessary, but far more essential is the cultivation of a spirit of investigation, which can only be fostered by en-

dowment directed to that end. The Proctor fund is a definite step in this direction, as was the Croft fund for the investigation of cancer. The liberality shown in the disposition of the bequest is also noteworthy: it is to be under the control of the departments of medicine and pathology, and is to be devoted to the care and clinical investigation of persons afflicted with chronic disease. A more fitting disposition of the income of the fund could not have been made. With the prominent place which the study of infectious and acute disease has taken in the last few years, there has been a curious and lamentable neglect, especially in this country, of the still more fundamental problems underlying the long array of constitutional and chronic affections. We have had no adequate provision at hospitals, where such cases could be studied over considerable periods of time, nor have we had the interest which might have demanded that such provision be made. This bequest, liberal in its provisions and yet absolutely precise in regard to the use to which it is to be put, should serve as a stimulus to others to broaden this field of work, and finally to establish it on a definite basis of usefulness. We need endowment sufficient to make it possible for our large general hospitals to support beds for patients suffering from all forms of chronic disease. Until this is attained we shall fall far short of the ideal hospital both as an institution for the care of the sick and as a centre for medical education and research.

Still more significant for the future of teaching in this community is the fact that by this bequest, for the first time the Harvard Medical School has come into control of one or more hospital beds. This marks, therefore, the beginning, small though it be, of the independence of clinical medical instruction, and should lead in logical sequence to the much desired consummation of a university hospital.

#### LEAD POISONING IN ITS RELATION TO PUBLIC WATER SUPPLIES.

THE occasional occurrence of lead poisoning through the use of drinking water conveyed in lead pipes is by no means a new subject. It was recognized by the architect Vitruvius and by the physician Galen. The literature upon this subject is extensive, and the chemists of many nations unite in the opinion that certain waters act injuriously upon lead pipes. Until within the past 25 years, however, the majority of reported cases were those of individuals or of families using the water of wells drawn through lead pipes. One reason for this condition, so far as Massachusetts is concerned, is to be found in

the fact that before 1870 fully two-thirds of the population were supplied with water from wells, but from that time to the present the introduction of public water supplies has progressed very rapidly, and, according to the last report of the State Board of Health (1900), more than nine-tenths of the population are now using the water of public water supplies, and 166 cities and towns are thus supplied, as compared with only 26 in 1870.

Most of the large supplies of the State which have been in use for 25 years or more, including those of Boston, Worcester, Fall River, Lowell, Cambridge, Lynn, Lawrence, Springfield, Holyoke and Salem, were surface water supplies taken from streams, lakes, ponds or other surface storage basins, and so long as this system of supply was continued in use cases of lead poisoning among persons using such waters were practically unknown.

In the second report of the State Board of Health (1871) a report was made by the secretary, being partly the result of certain inquiries which had been made by correspondence with physicians, and partly the results of certain examinations of Cochituate water made by Prof. W. R. Nichols. These examinations showed that the water then in use dissolved minute quantities of lead, but on a later page the board stated that "no authenticated instance of lead poisoning from the Boston water has come to our knowledge, although lead pipe is almost universally used for distribution." The same statement was made regarding Charlestown and Worcester. The Board also said in the same report: "The only safe practice with water which has not been tested with lead pipe by long experience, is to use some other material than lead for its conveyance."

Not until the past 10 years have cases of lead poisoning been reported in considerable numbers from cities or towns having public water supplies, but beginning with an epidemic of this character in Kingston, in 1895, several such incidents have occurred, the last being that of Milton, which was reported in December last. In all of these cases the public water supply was taken from the ground either by tubular wells or otherwise and not from surface sources.

At Kingston, where an old water company had existed for nearly a century, using water from the Jones River, the town bought the rights of the old company and introduced a public supply from a well and filter gallery upon the banks of the same river. This change was followed in a short time by the occurrence of 35 or 40 cases of lead poisoning upon the route of the public supply. In several instances the houses were served with water by lines of pipe of 100 feet or more, and in one instance 700 feet in length.

As long ago as 1842 a special committee was appointed in Lowell, which reported that the ground waters of that city dissolved lead in dangerous quantities, and warned the inhabitants against the use of lead pipe. A public supply of surface water was introduced in 1873 from the Merrimac River, and while this water was in use no cases of lead poisoning were reported from that city. But the increasing pollution of the river by the sewage of cities farther up the stream led the city authorities to seek for a supply from other sources. For this purpose water was then taken from driven wells, part of which were north of the river and part were in a district south of the river. In 1899 it was found that cases of lead poisoning had occurred in Lowell, and an investigation was made which resulted in finding 50 well-marked cases. Analysis of the water of the public supply showed that lead pipes were attacked by the water to such an extent as to make it dangerous to use for drinking or cooking purposes. This quality, however, was much more noticeable in the case of the water from the Cook and hydraulic wells on the south side of the river, than was shown by the water of the boulevard wells on the north side. The State Board of Health then communicated this fact to the Lowell Water Board and advised them that "the only way in which safety can be insured is by removing all lead service pipe which conveys water for drinking or cooking." After additional investigations the board, three months later, advised the city authorities still more emphatically upon the same subject.

The circumstances at Milton were as follows: The town of Milton receives its water from a local water company which purchases the water from the Hyde Park Water Company. The latter company obtains its water from wells, some of which are in the valley of the Neponset River and others are near Mother Brook. The latter were introduced late in 1899. No cases of lead poisoning were reported from Milton until near the close of 1901, when the State Board of Health was requested to make an investigation. This inquiry disclosed the existence of 17 cases of lead poisoning and one death, attributed to this cause. One of the peculiar conditions associated with these cases was the fact that a sewer was being laid in one district, necessitating a deep cut which resulted in the draining of several wells. Consequently, connections were made with the public water supply by means of new lead pipes which carried water to the houses formerly supplied by wells.

The local Board of Health applied to the State Board for advice upon the subject, and after investigation they were advised to remove the

lead pipes or obtain a new source of water supply which would not act upon lead. The local Board of Health immediately communicated this advice to the people of the town.

A few cases of the same character have occurred in the towns of Fairhaven and Milford, in each of which places water is obtained from the ground by means of wells.

With reference to the peculiar characteristics of the water of these supplies where cases of poisoning existed, the chemist of the State Board of Health, Mr. Clark, says in the last report of the board (report of 1900, p. 487):

"The results of these investigations, up to the time of writing the report given in 1898, seemed to show that the cause of the taking of lead from the service pipes by the water of certain towns and cities was the presence of a considerable volume of free carbonic acid in the ground waters, which actively attacked lead, and further investigation has confirmed this conclusion."

Various statements have been made by different authorities as to the amount of lead in water which is necessary to produce poisonous effects. These vary from  $\frac{1}{10}$  gr. per gallon to as small a quantity as  $\frac{1}{100}$  gr. per gallon, one physician having reported a case in which the quantity was only  $\frac{1}{100}$  gr. per gallon. An amount exceeding  $\frac{1}{10}$  gr. per gallon is mentioned as dangerous by several English authorities, including Dr. E. A. Parkes and Dr. Taylor. In the celebrated case in which the family of Louis Philippe were poisoned by the use of water stored in a lead tank, the amount was  $\frac{1}{10}$  gr. per gallon.

In the report of the State Board of Health for 1898, the following statement may be found (p. xxxii):

"The exact amount of lead which may be taken into the system without producing harm is not definitely known, and may vary with different people, but it is known that the continuous use of water containing quantities of lead as small as .05 of a part per 100,000, or about  $\frac{1}{2000}$  gr. per gallon, has caused serious injury to health."

The symptoms of chronic lead poisoning, such, for example, as are liable to ensue after the continuous use of water containing small quantities of lead, are given as follows in the same report:

"The symptoms are usually slow in their progress. There is usually a rapidly developing anemia, with a consequent anemic pallor of the skin. There is often constipation and indigestion, with a feeling of depression at the outset. Then there may be a loss of appetite, an unquenchable thirst, a constant unpleasant metallic taste, and a foul odor in the breath. The countenance becomes dull and appears anxious. There is rarely any fever and the pulse is usually natural. The rea-

piration is often rapid. There is frequently abdominal hardness and pain, the pain increasing as the case progresses, colic being the most common symptom. But little urine is usually passed, and there is dysuria.

"Far more commonly, lead paralysis is manifested. It may occur after a single attack of chronic lead poisoning, but is more often the result of a series of attacks, and occasionally occurs without being preceded by any attack. The upper extremities, and especially the extensor muscles, are most commonly attacked, those of the hand and forearm first suffering.

"The chief diagnostic sign is the blue line upon the gums at the margin of the teeth. This is due to the formation, in the capillaries of the gums, of sulphide of lead. It is not invariably present. The presence of lead in the urine constitutes a valuable diagnostic symptom.

"In mild cases the prognosis is usually favorable when the exciting cause has been removed. But in severe cases, and especially where paralysis exists as a consequence of lead poisoning, the injury may be permanent, and occasionally proves fatal."

#### MEDICAL NOTES.

**A VIGOROUS ACTION AGAINST SMALLPOX.**—A Michigan Central train was recently held up for 3 hours. There was a case of smallpox on board, and the health officer is said to have refused to allow the train to proceed until every person on board had been vaccinated.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Feb. 5, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 43, scarlatina 20, measles 128, typhoid fever 17, smallpox 46.

**MEETING OF MASSACHUSETTS ASSOCIATION OF BOARDS OF HEALTH.**—The annual meeting of this association was held last week in Boston. About 75 members and a few guests were present. Dr. H. P. Walcott presided at the dinner which followed the informal meeting. Smallpox and vaccination were the subjects of the after-dinner speeches.

**COMPULSORY VACCINATION.**—During the past week several animated hearings have been held at the State House, in relation to a bill modifying the law regarding compulsory vaccination in Massachusetts. Among those who appeared as remonstrants against the proposed emasculatation of the law were Dr. S. H. Durgin, Dr. Frank W. Draper, Dr. W. T. Councilman, Dr. H. B. How-

ard, Dr. I. H. Bancroft, Dr. Azel Ames, who had charge of vaccination in Porto Rico, and representatives of many large retail stores in Boston and the principal steamship lines. President Eliot of Harvard University placed himself on record as strongly in favor of compulsory vaccination, several times repeated.

**REQUEST TO THE HARVARD MEDICAL SCHOOL.**—The late Miss Ellen O. Proctor has given by will to the president and fellows of Harvard College and their successors, the sum of \$50,000, the same to constitute a fund to be known as the Proctor Fund for the Study of Chronic Diseases; the income of said fund to be devoted to the care in a hospital, or hospitals, of persons afflicted with chronic diseases, and to investigations into the nature and treatment of the same; the special disposition of the income of said fund to be under the control of the heads of the Departments of Theory and Practice, Clinical Medicine and Pathology in the Harvard Medical School.

**OPENING OF CITY HOSPITAL RELIEF STATION.**—The new City Hospital Relief Station was formally opened at noon on Tuesday. The exercises were held in the presence of the members of the city government and a few invited guests. On Wednesday the building was opened for the inspection of the public, and after a few days it will be opened for actual service.

**MASSACHUSETTS MEDICO-LEGAL SOCIETY.**—The spring meeting of the society was held on Wednesday, Feb. 5, at the Boston Medical Library. The following papers were read: "The Serum Test for Blood Stains," by Prof. Edward S. Wood and Prof. William F. Whitney of Boston; "A Difficult Diagnosis," by Dr. Francis A. Harris of Boston.

**THE MEDFORD (MASS.) DETENTION HOSPITAL BURNED.**—The Detention Hospital at Medford, Mass., which was being used for smallpox patients, was burned Feb. 3, involving a loss of about \$5,000.

**INCREASE OF CREMATION.**—According to the last report of the trustees of Mt. Auburn Cemetery, the number of cremations during 1901 was 119, as against 50, the total number preceding.

#### NEW YORK.

**DAMAGE TO MANHATTAN EYE AND EAR HOSPITAL.**—The Manhattan Eye and Ear Hospital was damaged to the extent of about \$20,000 by the Park Avenue dynamite explosion on Jan. 27, which occurred almost directly in front of the building. A number of the patients were more or less seriously injured, principally by broken glass, and several others suffered from shock and exposure. At the time of the explosion one of



the surgeons, Dr. Gage, was engaged in removing a foreign body from the eye of a visiting patient. Both were thrown to the floor, but while the surgeon, who fell on top, was quite badly cut about the neck and side of the face, the patient escaped entirely without injury. The patients were temporarily accommodated in the hospital annex, which was not so badly damaged as the main building, and later were transferred to various other hospitals and infirmaries, nearly every institution of the kind in the city having made offers of assistance.

**ELECTION OF OFFICERS OF MEDICAL SOCIETY OF STATE OF NEW YORK.**—At the 96th annual meeting of the Medical Society of the State of New York, held in Albany on Jan. 28, 29 and 30, the following officers were elected: President, Dr. Henry R. Hopkins, Buffalo; Vice-President, Dr. Wm. A. Moore, Binghamton; Secretary, Dr. Frederick C. Curtis, Albany; Treasurer, Dr. Ogilvie D. Ball, Albany. During the session a committee of five was appointed, on the recommendation of the president, Dr. Eisner, to confer with a similar committee representing the State Medical Association with a view to bringing the two organizations together.

**DEFEAT OF OSTEOPATHY BILL.**—Happily the osteopathy bill has been killed in committee. A public hearing on it was given before the Joint Committee on Judiciary on Jan. 29, during the meeting of the State Medical Society at Albany, and at the executive session of the committee which was held directly afterward the measure was dropped. Among those who spoke against it were Drs. A. G. Root and Albert Vanderveer of Albany, A. Jacobi of New York, and H. R. Hopkins of Buffalo.

**TRANSFERENCE OF TUBERCULOUS PATIENTS.**—As his last official act before surrendering his authority over Bellevue and the other city hospitals to the new board of hospital trustees, the commissioner of public charities on Jan. 31 transferred 21 tuberculosis patients from Bellevue to one of the pavilions on Blackwell's Island, formerly occupied by the Manhattan State Hospital for the Insane, which has been fitted up for this class of cases. It has accommodations for 120 patients.

### Obituary.

JOHN T. METCALFE, M.D.

DR. JOHN T. METCALFE, for many years one of the leading practitioners and most eminent consultants and medical teachers of New York, died at his winter residence in Thomasville, Ga., on Jan. 30, in his 84th year. He was born in Natchez, Miss., was graduated at West Point in 1838, where he had as a classmate Gen. P. T.

Beauregard of Louisiana. He served in the army for two years, for the most part in Florida. He then resigned and began the study of medicine, taking his doctor's degree at the University of Pennsylvania in 1843. He spent two years abroad, most of the time at Paris and Edinburgh. On returning home he quickly took and held, and that without much apparent effort, a place in the very front rank of medical practitioners in the city of New York. At one time Dr. T. Gaillard Thomas was associated with him in his practice, and subsequently for a time Dr. William M. Polk, the son of his old friend Bishop Polk, the famous "fighting Bishop" of the South.

For a number of years Dr. Metcalfe was professor of clinical medicine at the College of Physicians and Surgeons, and his lectures both at the college and at Bellevue Hospital were among the most popular ever given in New York. While he was idolized by his classes, he was not less beloved and esteemed in the community at large; and his genial presence, his delightful humor and rare urbanity of manner, as well as his brilliant professional attainments, will long dwell in the minds of all who knew him.

Some years ago Dr. Metcalfe retired from practice and was made professor emeritus at the College of Physicians and Surgeons, and since that time he had spent his summers with his son, Captain Henry Metcalfe, near West Point, on the Hudson, and his winters at Thomasville, where for many years he had indulged his tastes as an enthusiastic sportsman, tastes which were of material service in maintaining the health of an unusually sensitive and sympathetic nature.

During his professional career Dr. Metcalfe accumulated a large private library, which he donated several years ago to the New York Academy of Medicine, of which he was one of the original members. Within the past two years a fine portrait of Dr. Metcalfe was presented to the academy by Dr. T. Gaillard Thomas.

### Correspondence.

#### THE PRODUCTION OF ANTITOXINS AND VACCINE BY BOARDS OF HEALTH.

AUDI ALTERAM PARTEM.

WE believe that the production of antitoxins and vaccine by boards of health is a subject fairly open to fair discussion. For this reason we publish the following communication from a firm of manufacturing chemists in whose products much confidence is justly felt:

MR. EDITOR: We have read, with considerable interest, your reply to the letter mailed you under date of Jan. 8, by Dr. A. M. Phelps of New York City.

Is it not rather coincident that the only fatalities that have ever occurred from the administration of diphtheria antitoxin have been those that occurred where the antitoxin was prepared in laboratories immediately under state or municipal control? We refer to the unfortunate experience at St. Louis, as well as the accidents that followed the administration of antitoxin in Italy.

There is not a firm engaged in the production of diphtheria antitoxin today that does not give to its laboratory generous appropriation, without waiting for any political party to state how much money shall be spent, and rather anticipates the needs and takes care to see that proper equipment is given to make the preparation a successful one.

The province of boards of health, both state and municipal, is to safeguard its constituents. No better plan could be adopted than to have tests made, and, if required, inspect the laboratories in which the preparations are produced, and where criticisms are made.

let them be made openly. The very effective work which the Massachusetts State Board of Health did several years ago, in testing the antitoxins in the market, and showing physicians the quality of the serums furnished, stopped the sale of spurious products that did not contain the full number of units claimed for it. The subject of supplying pure vaccine and antitoxins, or any pharmaceutical product, really comes in the direct line of work which boards of health should undertake and carry out, but we do not believe that they should manufacture and place these in direct competition with private manufacturers any more than they should spend sums of money for the establishment and issuing of a medical journal, or the sale of epsom salts.

We vouchsafe the statement that if the small amount of money which the Massachusetts State Board of Health expends for the keeping and care of its horses was given to the purchase on the open market of a sufficient quantity of antitoxin, subject to their own bacteriological examination for purity, and also test for activity, it would more than meet the demand made upon them. The state can pauperize, as well as protect, the poor.

While we do not desire to carry on this controversy in the columns of your journal, we feel that it is the province of the municipal and state boards of health rather to inspect and test the various products than to attempt to compete in their manufacture.

Relative to our own products, every package that goes out bears a date. The products are as carefully tested and prepared as the expenditure of brains and money will allow, and we believe there are other firms who are just as earnestly striving to market reliable vaccine and antitoxins as ourselves. An inspection of the laboratories by your journal, as well as testing of samples bought in the open market, is the best way to prove the value of the preparations and that they are up to the mark. Let results be published, and if any product is not as it should be physicians can readily be made acquainted with the fact.

Meanwhile, we extend to you or your representative a cordial invitation to inspect our laboratories at any time.

### GLYCERINATED VACCINE LYMPH.

ROXBURY, Jan. 29, 1902.

MR. EDITOR: My attention has been called to an editorial in your issue of Jan. 2 on the "Production of Vaccine Lymph." If it were not evident that the writer has no practical knowledge whatever of his subject, but has merely made a sort of compilation from pamphlets, etc., I should be astonished at his statement that the fact of glycerinated lymph being produced from the pus layer of the vesicle was "false and misleading." The fact that certain authorities in Europe approve of using the pus layer, after immersion in glycerin, and that I have opposed this practice for some seven or eight years, is no reason why I should be insulted. Regarding the abuse he showers on private producers of vaccine, I can only say that the glycerinated lymph is a fad, at present, with the profession; that not one physician in one hundred knows anything of its composition; and that those producers who have the courage of their convictions and refuse to produce it simply do so at great pecuniary loss.

The truth is, that if the pus layer of the vesicle is immersed in glycerin until it is really sterile the vaccine principle is destroyed, as well as the other germs. All samples of commercial glycerinated lymph that I have seen analyzed, or heard of, if they will still "take" successfully, contain colonies of pus cells.

Very truly yours,

FRANCIS C. MARTIN, M.D.

[In reply to the foregoing letter, we would merely say that the use of glycerinated vaccine lymph cannot properly be termed a "fad" in view of the following facts:

This method of preparing vaccine lymph has been adopted as the result of careful experiments and observa-

tions by the highest modern authorities upon the subject, and is now preferred by the officials in charge of vaccination in every one of the principal countries of Europe.

In Germany, for example, it is used by preference in every one of the largest cities of the empire, as shown by the official reports of the German Government for the last 10 years.

It is also used in preference to all other modes of preparation in Belgium, France, Italy and Switzerland.

The British Government, always slow to adopt new methods, sent a commission consisting of Drs. Thorne and Copeman, to the continent in 1897 to investigate the subject and these gentlemen visited Germany, Switzerland, France and Belgium. On their return they recommended the use of glycerinated lymph, and as a result we find the following statement in the Local Government Board Report of 1898: "We are now able to report that arrangements have been made for the inoculation of special calves and for the preparation of the lymph collected from them in the glycerinated form."

And in the last report of the board for 1900 (page x), the board further states: "Glycerinated lymph was, in response to 47,097 applications from public vaccinators, issued in 1899 to the amount of 499,281 packages."—En.]

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JAN. 25, 1902.

CITIES.	Population * Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Diarrheal diseases.	
New York . . .	3,665,352	1,392	456	22.33	20.17	3.45	.80	2.08	
Chicago . . .	1,852,828	—	—	—	—	—	—	—	
Philadelphia . . .	1,349,624	563	158	21.66	17.58	2.12	1.60	.34	
St. Louis . . .	603,717	—	—	—	—	—	—	—	
Baltimore . . .	525,330	209	52	20.55	18.16	.96	1.43	.21	
Cleveland . . .	411,828	—	—	—	—	—	—	—	
Buffalo . . .	375,742	—	—	—	—	—	—	—	
Pittsburg . . .	341,401	157	53	20.38	24.20	1.27	5.73	1.91	
Cincinnati . . .	332,032	—	—	—	—	—	—	—	
Milwaukee . . .	304,976	—	—	—	—	—	—	—	
Washington . . .	289,537	—	—	—	—	—	—	—	
Providence . . .	186,870	59	16	17.00	15.30	—	—	—	
Boston . . .	588,736	209	45	22.00	16.28	4.30	—	—	
Worcester . . .	127,337	30	14	3.33	26.66	3.33	—	—	
Fall River . . .	111,872	35	13	11.42	20.00	2.85	—	—	
Lowell . . .	99,574	28	16	21.42	21.42	14.28	—	—	
Cambridge . . .	96,334	24	6	20.83	16.66	—	—	—	
Lynn . . .	71,144	15	2	6.67	—	6.67	—	—	
Lawrence . . .	67,275	21	9	28.56	14.28	—	—	9.52	
Springfield . . .	66,854	—	—	—	—	—	—	—	
Somerville . . .	65,982	22	—	31.81	9.09	4.54	—	—	
New Bedford . . .	65,574	21	9	19.04	28.56	4.76	—	—	
Holyoke . . .	48,005	11	4	9.09	27.27	—	—	—	
Brockton . . .	43,208	8	4	25.00	—	—	—	—	
Haverhill . . .	40,392	7	3	57.20	—	14.30	—	—	
Salem . . .	36,567	9	2	22.22	22.22	22.22	—	—	
Newton . . .	36,336	8	2	—	12.50	—	—	—	
Malden . . .	35,390	9	4	33.33	—	11.11	—	—	
Chelsea . . .	35,264	17	6	5.88	—	5.88	—	—	
Fitchburg . . .	33,848	6	3	—	20.00	—	—	—	
Taunton . . .	32,759	5	—	60.00	—	20.00	—	—	
Everett . . .	27,114	7	1	14.30	14.30	—	—	—	
North Adams . . .	26,583	8	5	25.00	37.50	—	—	—	
Gloucester . . .	26,121	—	—	—	—	—	—	—	
Quincy . . .	25,307	9	3	22.22	22.22	11.11	—	—	
Waltham . . .	24,612	5	2	—	—	—	—	—	
Pittsfield . . .	22,311	2	1	—	100.	—	—	—	
Brookline . . .	21,679	2	1	50.00	—	—	—	—	
Chicopee . . .	20,390	8	3	25.00	—	—	—	—	
Medford . . .	20,014	4	—	—	25.00	—	—	—	
Newburyport . . .	14,478	7	1	14.30	14.30	—	—	—	
Melrose . . .	13,384	4	1	—	—	—	—	—	

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1896. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 2,954; under five years of age, 903; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption, 631, acute lung diseases 554, consumption 327, scarlet fever 34, erysipelas 12, typhoid fever 32, whooping cough 14, cerebrospinal meningitis 7, smallpox 37, measles 27, diarrheal diseases 39.

From whooping cough, New York 10, Philadelphia 2, Lawrence 1, Chicopee 1. From cerebrospinal meningitis, New York 2, Pittsburg 1, Boston 1, Somerville 1, Brockton 2. From scarlet fever, New York 25, Philadelphia 3, Pittsburg 4, Boston 2. From measles, New York 22, Pittsburg 4, Boston 1. From erysipelas, New York 5, Philadelphia 3, Baltimore 1, Providence 1, Boston 1, Lowell 1. From smallpox, New York 11, Philadelphia 19, Boston 6, Cambridge 1.


Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-five great towns of England and Wales, with an estimated population of 14,800,427, for the week ending Jan. 11, the death-rate was 18.3. Deaths reported 5,183; acute diseases of the respiratory organs (London) 366, whooping cough 78, diphtheria 82, measles 124, smallpox 53, scarlet fever 58.

The death-rate ranged from 5.5 in Hornsey to 25.2 in Preston; London 18.6, West Ham 17.4, Croydon 16.3, Brighton 14.7, Portsmouth 16.8, Southampton 15.5, Bristol 17.5, Birmingham 18.8, Leicester 17.3, Nottingham 19.1, Birkenhead 18.6, Liverpool 20.8, Manchester 19.5, Salford 20.5, Bradford 16.1, Leeds 19.7, Sheffield 20.7, Hull 17.6, Newcastle-on-Tyne 20.5, Cardiff 15.4.

#### METEOROLOGICAL RECORD

For the week ending Jan. 25, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S...19	30.02	30	40	19	53	62	58	W	N W	12	10	O. C.	C. C.	.56
M...20	30.44	24	31	16	51	82	66	N W	E	8	3	C. C.	C. C.	
T...21	30.18	33	39	27	75	100	88	E	E	8	18	O. R.	O. C.	
W...22	29.45	43	48	38	100	92	96	S E	S W	25	5	R. O.	R. O.	
T...23	29.54	36	41	30	79	85	82	S W	N W	14	10	O. C.	O. C.	
F...24	29.96	34	40	28	68	45	56	S W	N W	9	7	O. C.	C. C.	
S...25	30.40	28	33	24	62	74	68	N W	E	8	6	C. C.	C. C.	
	30.01		39	26			73							.56

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ☞ Mean for week.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING FEB. 1, 1902.

W. K. VAN RYCKEN, rear admiral. Detached from duty as chief of the Bureau of Medicine and Surgery, Navy Department, and ordered home and to wait orders.

C. M. OMAN, assistant surgeon. Commissioned assistant surgeon from Dec. 18, 1901.

G. M. MAYERS, assistant surgeon. Detached from the Naval Hospital, Cavite, P. I., and ordered to the Isla de Cuba.

#### APPOINTMENTS.

DR. HOWARD H. SMITH has been appointed Resident Assistant Physician at the South Department of the Boston City Hospital.

DR. JAMES B. AYER has been appointed by Governor Crane, a member of the State Board of Insanity, in place of Dr. Herbert B. Howard, who resigned to become one of the Board of Trustees of the State Colony for the Insane, to which position he has been appointed by the governor, and of which board he has been made chairman.

DR. FLAVIUS PACKER, first assistant resident physician of the Manhattan State Hospital for the Criminal Insane, at Matteawan, selected on account of his special ability as an alienist, has been placed by the new Board of Hospital Trustees in charge of the pavilion for the insane at Bellevue Hospital. Dr. Thomas De L. Burkhalter, removed from the latter, has been assigned a position in the Health Department.

#### RECENT DEATHS.

SCOTT CAMPBELL NEWCOMB, M.D., M.M.S.S., died in Walpole, Mass., Dec. 31, 1901, aged 30 years.

DR. CHARLES H. BURNETT, an eminent aurist, died last week at his home at Bryn Mawr, near Philadelphia. He was 61 years of age.

DR. LACHLAN TYLER of New York died of appendicitis at the Post-Graduate Hospital on Jan. 26, at the age of 50. He was the son of President John Tyler, tenth president of the United States, by his second marriage. For many years Dr. Tyler was connected with the Health Department of the city. He was graduated from the College of Physicians and Surgeons, New York, in 1876. A brother is now president of William and Mary College, at which both the deceased and his father received their academic education. Dr. Tyler's body was taken to Richmond, Va., for interment in the family vault.

DR. DOMINICK G. BODKIN of Brooklyn, N. Y., died Jan. 26 after a long illness. He was born in Ireland, in 1833, but came to this country at an early age. While he was studying medicine in New York the Civil War broke out, and he went into the army as an assistant surgeon in General Canby's corps. At the close of the war he completed his medical studies, and was graduated from the medical department of the University of the City of New York in 1866. He was one of the best known physicians in Brooklyn, where he had practiced for 35 years, and for many years he was on the attending staff of St. Mary's Hospital.

#### BOOKS AND PAMPHLETS RECEIVED.

Anisometropia. By Dr. Alexander Duane, New York. Reprint. 1901.

Is Medicine Founded on Truth? By W. J. George, M.D., Johnstown, Pa. Reprint. 1901.

The Diagnosis of Ocular Paralysis. By Alexander Duane, M.D., New York. Reprint. 1901.

Transactions of the American Ophthalmological Society. Thirty-seventh Annual Meeting, New London, Conn., 1901.

The Race Question in the United States. By R. P. Brorup. Fitzgerald, Ga.: North and South Publishing Co. 1902.

Hay Fever and Asthma. A Permanent Cure by Means of Nasal Surgery. By Floyd S. Muckey, M.D., C.M. Reprint. 1902.

Simultaneous Rupture of the Choroid and Paretic Mydriasis without Paresis of Accommodation. By Alexander Duane, M.D., New York. Reprint. 1901.

The Diagnostic Importance of the Examination of the Feces. By Charles D. Aaron, M.D., Detroit, Professor of Clinical Gastro-Enterology in the Detroit College of Medicine; Consulting Gastro-Enterologist to Harper Hospital, etc. Reprint. 1901.

The Present Status of Epileptics in Virginia. By William Francis Drewry, M.D., Petersburg, Va., Member Commission on State Care of Epileptics; Superintendent of the Central State Hospital of Virginia, Petersburg. Reprint. 1901.

The Practical Medicine Series of Year Books, comprising ten volumes on the Year's Progress in Medicine and Surgery. Issued monthly, under the General Editorial Charge of Gustavus P. Head, M.D. Vol. III. The Eye, Ear, Nose and Throat. Edited by Casey A. Wood, C.M., M.D., Albert H. Andrews, M.D., T. Melville Hardie, A.M., M.D. Chicago: The Year Book Publishers. 1901.

Jahresbericht über die Fortschritte in der Lehre von den Pathogenen Mikro-organismen umfassend Bacterien, Pilze und Protozoen Unter Mitwirkung von Fachgenossen bearbeitet und herausgegeben von Dr. med. P. von Baumgarten o. ö. Professor der Pathologie an der Universität Tübingen und Dr. med. F. Tangl o. ö. Professor der Physiologie an der tierärztlichen Hochschule in Budapest. Fünfzehnter Jahrgang. 1889. Leipzig: Verlag von S. Herzl. 1901.

International Clinics, a Quarterly of Clinical Lectures, and Especially Prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and other Topics of interest to Students and Practitioners. By leading members of the Medical Profession throughout the world. Edited by Henry W. Cattell, A.M., M.D., with the collaboration of John B. Murphy, M.D., Alexander D. Blackader, M.D., H. C. Wood, M.D., T. M. Roth, M.D., E. Landolt, M.D., Thomas G. Morton, M.D., Charles H. Reed, M.D., J. W. Ballantyne, M.D., and John Harold, M.D., with regular correspondents in Montreal, London, Paris, Leipsic and Vienna. Illustrated. Vol. III. Eleventh series, 1901. Philadelphia: J. B. Lippincott Co. 1901.

## Original Articles.

## SURGERY OF THE GALL BLADDER AND DUCTS.\*

BY JOHN W. KEEFE, M.D., PROVIDENCE, R. I.,

*Attending Surgeon to the Rhode Island and St. Joseph's Hospital.*

THE surgery of the biliary passages has made marked progress during the past 5 years, and I venture to say that in the next decade the general practitioner will become as familiar with gallstone surgery as he is at the present day with appendicitis.

I find in the literature of the subject the following: The operation was advocated or suggested as early as 1743 by Jean Louis Petit.<sup>1</sup> The first operation of cholecystotomy was performed by Baggs<sup>2</sup> of Indiana in 1867, yet it may be said that, as he did not know the nature of the tumor for which he opened the abdomen, the operation was accidental. Dr. Marion Simms,<sup>3</sup> in 1878, was the first to perform it as a formal operation.

In 1863 Thudicum<sup>4</sup> found indications and described the technique which is analogous to our modern. He describes cholecystostomy in two stages, the first consisting in suturing the gall bladder to the abdominal wall, and the second in incision and removal of the stone.

In 1878 Kocher<sup>5</sup> opened an enormous empyema of the gall bladder successfully, tamponing with Lister's gauze; in 1879 both Keen<sup>6</sup> and Lawson Tait<sup>7</sup> report cases, and in 1882 Langenbuch<sup>8</sup> first suggested cholecystectomy for dropsy and empyema of the gall bladder, due to obstruction of the cystic duct.

In 1882<sup>9</sup> von Winivarter devised a cholecystenterostomy, and in 1884 Kümmel<sup>10</sup> was the first to perform a choledochotomy combined with cholecystectomy.

Mignot<sup>11</sup> produced gallstones in rabbits and guinea pigs by introducing tampons, saturated with cultures of the bacillus coli, into an opening in the gall bladder. These cultures were of diminished virulence, otherwise the animals would have died. He obtained concretions, at varying intervals, which consisted of cholesterin.

Summa<sup>12</sup> says that the destruction of the epithelial cells of the mucosa of the gall bladder causes precipitation of the bile constituents, while Miyoke<sup>13</sup> says infection is necessary for the experimental formation of a gallstone, as no stone follows the introduction of sterile foreign bodies or cauterization of the mucosa.

Naunyn<sup>14</sup> states that the mucous membrane of the gall bladder secretes a substance which by addition of acetic acid forms cholesterin. He says that gallstones, with few exceptions, originate in the gall bladder, the nucleus being hemic or bacterial.

Thudicum<sup>15</sup> combats the views of Naunyn as to the formation of stones and says that bilirubin is

not a constituent of normal human bile, but that bilifuchsin is the coloring matter, and that the mucous glands do not take part in the formation of stones.

Lauenstein<sup>16</sup> performed 84 operations on the biliary passages, and in several cases found no bile in the gall bladder. He explains this by saying that a stone in the cystic duct acts like a ball valve, allowing fluids to flow inwardly but not outwardly. When the gall bladder is distended with bile, the calculus stops the flow through the cystic duct in both directions. As a result, the bile, instead of passing into the intestine only at meal time, flows continuously through the common duct, leaving its sphincter always open for infection to enter.

Housemann<sup>17</sup> found that 7 months was usually required for the formation of gallstones, yet they occasionally formed in less time. He reports a case in which a silk thread, introduced near the papilla for gastrotomy, caused the formation of gallstones in 4 months.

John Homans<sup>18</sup> reports a case in which the stone formed in 1 year and 8 months, and Kehr<sup>19</sup> cites one where the stone formed 1½ years after the introduction of a silk thread.

Of 2,619 autopsy reports found by Hirschberg<sup>20</sup> in the records of the past 10 years at the Pathological Institute of Erlangen, there were 158 cases of gallstones, namely, 6.3%.

In most cases where gallstones have proved fatal, it has been through peritonitis. Various authorities state that from 6 to 10% of the adult population are affected with gallstones. These stones may remain for many years without causing injury to their host, yet he is in imminent danger of an acute cholecystitis which in a short time may become gangrenous. The colored race are less prone to gallstones than the white. A Louisville surgeon<sup>21</sup> reports but 1 case occurring in a negro out of 106 operations performed.

Stones of an enormous size have sometimes been found. J. P. Lord<sup>22</sup> reports a case where a man aged 70 had a stone measuring 4½ by 6 by 2½ inches; Marshall of Glasgow reports one 1½ by 3½ inches; Smith and Fagge, single stones each 2½ by 4½ inches.

Biliary colic is now believed to be due to cholecystitis rather than to the passage of a stone, and, in chronic cases, an impaction of the stone in the common duct is not necessarily accompanied by jaundice or a distended gall bladder.

Exner<sup>23</sup> found, in 40 cases of gallstones, glucose in the urine to the extent of .4 of 1% or over, by the polarization or the fermentation test. After operation the sugar diminished inside of 8 to 21 days in some cases, while in others it disappeared. In 39 out of 40 cases cited by Czerny<sup>24</sup> in which sugar was present in the urine, no trace was found after operation.

Bevan<sup>25</sup> reported that in the French Laboratories, typhoid bacilli injected into the gall bladder produced stones. He believes that the etiology is mycotic. Chiari<sup>26</sup> reports 22 cases of typhoid in which the typhoid germ was found in 19 gall

\* Read before the Rhode Island Medical Society, Dec. 5, 1901.

bladders. Fournier<sup>27</sup> found the typhoid bacilli in 38 of 100 stones examined. Typhoid infection is certainly connected in some way with the formation of gallstones.

Peterson<sup>28</sup> gives as absolute indications for operation: (1) Acute cholecystitis, empyema and threatened peritonitis; (2) chronic cystitis and dropsy of the gall bladder; (3) chronic recurrent cholelithiasis and severe pain; (4) chronic obstruction and jaundice which remains for a long time without change. Relative indications: (1) Chronic recurrent cholelithiasis with variable pains; (2) beginning obstruction, jaundice. Relative contra-indications: (1) Very acute jaundice which may probably disappear; (2) inflammation, marked swelling of the liver, fever and chills.

The technique of cholecystostomy, as described by Poppert,<sup>29</sup> consists in affixing the gall bladder to the abdominal wall. He places a long drain or a thick Nelaton catheter in the gall bladder and sews hermetically the ends of the wound about the drain. A small strip of iodoform gauze is placed about the drain, and the fluid in the gall bladder at the time of closure of the wound is secure for 8 or 10 days. Then the secretion begins to leak through, but it is not dangerous, for, by this time, granulation has begun. The iodoform gauze is removed after 14 days, the drain after 3 to 4 weeks, and the fistula closes spontaneously.

Lejars<sup>30</sup> mistook for a renal tumor, an enormously distended gall bladder containing 300 cc. of pus but no stones. The gall bladder, which was incised, drained and sutured to the wound, healed without complications.

In choledochotomy Langenbuch<sup>31</sup> advises not to suture the duct but to use a drain of iodoform gauze. He employs a transverse incision between the xiphoid and the umbilicus, a little to the right of the median line. Quénn,<sup>32</sup> Routier and E. Schwartz also recommend to drain and not suture the duct.

In cholemia Robeson<sup>33</sup> advises administering, for 5 days before the operation and for a day or two afterwards,  $\frac{1}{2}$  dr. doses of calcium chloride 3 times a day by mouth and in nutrient enemata after operation.

In 1898 Meltzer<sup>34</sup> collected from literature, 191 cases of intestinal obstruction due to gallstones. In 73 the stones were discharged by rectum; in 3 cases the pylorus was stenosed by stones found at autopsy; in 98 cases the small intestine was obstructed by stones; of the latter 3 being in the duodenum, 24 in the jejunum, and 62 in the ileum. In 9 cases the stones were found in the large intestine, and in 8 the position was not noted.

Ransohoff<sup>35</sup> states that jaundice is an unreliable symptom. The average case requires a cholecystostomy with the formation of a fistula, but a cholecystectomy where the gall bladder is too much damaged. He says that stones in the cystic duct may be pressed upward into the gall bladder with the fingers or by irrigation; but if small and soft they may be crushed with the fingers or with a rubber-tipped forceps. Stones impacted

in the common duct should be removed, since they may later cause cancer.

Senn<sup>36</sup> believes that the x-ray is of importance in the diagnosis of gallstones, but Kerr states that it is of little value. Senn also thinks that extreme radicalism in operations for gallstones is too frequent, while Deaver<sup>37</sup> is of the opinion that conservatism like Senn's is dangerous, as perforating peritonitis following gallstones is common. He believes that no x-ray diagnosis of gallstones is possible.

Riedel<sup>38</sup> favors cholecystostomy in 2 stages in cases where there is advanced cholemia. He reports 100 cases, with no deaths where cholecystostomy had been performed, and 2 deaths following cholecystectomy. In cases where shrunken, atrophied gall bladders are so friable that they cannot be sutured to the abdominal wall, Pean, Terrier and other French surgeons have performed and advocated cholecystectomy.

Mayo<sup>39</sup> states that excision of the gall bladder is indicated in 4 groups of cases: (1) for traumatism, namely, gunshot wounds, etc.; (2) phlegmonous cholecystitis and gangrene of the gall bladder; (3) malignant disease; (4) relief of permanent obstruction of the cystic duct, the common duct being patent. In the last group only the mucous membrane is at fault; if this were not present there would be nothing to drain, and obliteration of the cystic duct would be harmless. Removal of the mucosa of the gall bladder offers quick and safe relief in such cases. The danger of a complete cholecystectomy is infection of the pedicle and its close relation to the liver. The simple removal of the mucous membrane, on the other hand, is much safer, but little more dangerous, in fact, than ordinary cholecystostomy. During the past 9 years there were 132 operations on the gall bladder and ducts performed at St. Mary's hospital, Rochester, Minn., including 11 cholecystotomies. Of these, 7 were for relief of obstruction in the cystic duct, causing mucous fistulae or recurrent attacks of biliary colic. Obstruction of the cystic duct occurred in about 10% of these cases as a secondary effect of operations for gallstones.

Mayo states that the technique of the removal of the gall bladder is easy. The mucous membrane is readily detached and the muscular and peritoneal coats of the gall bladder are sutured to the upper angle of the wound in the abdomen and drained as in an ordinary cholecystostomy. In removal of the mucous membrane as a secondary operation when cholecystostomy has failed, the incision in the abdomen is made to the inner side of the original wound. The adhesions are separated on the inner side sufficiently to explore, the other adhesions being left as a protection and gauze pads introduced as a further safeguard. The mucous membrane is separated in the middle, enucleated to the cystic duct, divided at the point of obstruction, and separated from within outwardly until entirely free. If the separation is begun at the attachment of the abdominal wall, it is very difficult. Drain the muscular

and peritoneal coats as usual and attach a piece of sterile gauze at the inner divided wall by a few catgut sutures.

McCosh<sup>40</sup> advises an early exploratory operation rather than wait and have to contend with the dangers of cholemia. He prefers cholecystotomy and reports 26 cases, not one of which was followed by permanent fistula. The average time of closure of a fistula was 42 days, the shortest 11 days. In 9 cases of choledochotomy, 2 died.

Loebker<sup>41</sup> reports 37 cases of cystotomy, all recovered; 87 cases of cystectomy, with only 2 deaths; 12 cases of choledochotomy, with 1 death. Of these 12 cases, cholecystectomy was performed 8 times. Early operation is advocated on account of the complications which attend later interference.

Riedel<sup>42</sup> states that operation is indicated as soon as the diagnosis of cholecystitis is made. Laxatives, including Carlsbad, lessen the pain. Eighty to ninety per cent of the so-called biliary colics or bilious attacks are cases of cholecystitis. He says: "Operate as early as possible, before infection has occurred, because, if the bile is sterile, there is no harm done should it get into the peritoneal cavity." The alpha and omega of the treatment is to remove the stones before they enter the common duct.

In one of the most important papers published on the surgery of gallstones, Naunyn<sup>43</sup> gives the following conclusions: (1) The tumor in cases of biliary colic is due generally to cholecystitis; (2) the pain or colic is due to cholecystitis; (3) jaundice in biliary colic is generally due to the cholecystitis or to the accompanying cholangitis. Lithogenous jaundice only occurs when the stones become impacted in the common duct. Cholecystitis may give the symptoms of biliary colic, or of a localized inflammation, or of a general infection with no local symptoms. The patient may die, the cholecystitis may become chronic, may develop into a dropsy or an empyema of the gall bladder, or the attack may terminate favorably by the expulsion of the stone. With the cholecystitis, a cholangitis may occur; then the liver is swollen, painful, there is marked jaundice, and symptoms of infection.

Normal bile is sterile, but following cholecystitis we almost always find the bacillus coli present. Pus is rarely found unless the staphylococcus and streptococcus are also present; hence, cholecystitis is distinct from empyema of the gall bladder and from suppurative cholangitis. Cholecystitis may become latent when the bile secures an exit, though the stone be not expelled. We cannot tell a successful attack of cholecystitis, namely, one in which all stones have been expelled, from an unsuccessful one, not even by finding the stones in the feces.

Chronic obstruction is usually caused by stones which get in the common duct when yet small and grow there. On the other hand, a stone may be in the common duct without causing icterus, while one in the cystic duct may cause icterus by compressing the common duct. In more than 50% of

cases of chronic obstruction there is cancer of the duct. There may be adenitis of the duct lymph-nodes and metastasis in the liver and peritoneum. Never forget to feel for glands in Douglass' pouch and examine the rectum. Ascites may give a valuable hint. Cachexia is not so pronounced in chronic obstruction from stones as from cancer. Indications for operation: The operation is not in all cases a radical cure, for stones may yet remain. Cholecystitis, acute or chronic, calls for operation. Cholecystitis and cholangitis, if they are very acute, should be operated on at once. Chronic recurrent cholelithiasis requires operation only after Carlsbad cure has been tried.

Kehr<sup>44</sup> of Halberstadt has the distinction of having performed the greatest number of operations for gallstones of any living surgeon. Up to Nov. 25, 1900, he had performed 547 operations for gallstones. If one excludes carcinoma, purulent cholangitis, peritonitis and cirrhosis of the liver, of which there is a mortality of 47%, there remain 422 laparotomies for gallstones, with 14 deaths, or a mortality of 3.3%.

Among the last 35 choledochotomies with hepaticous drainage, there are no deaths. During 2 years he operated 151 times with only 1 death, and that due to faulty technique; following cholecystectomy, the ligature slipped off the cystic duct. In all the cholecystotomies, in which the gall bladder was tied to the parietal peritoneum, there were no deaths. Fistulae closed in all cases. No recurrence except in 4 cases where silk ligatures caused recurrence of the stone. Kehr says cystendesis or immediate suture of the wound in the gall bladder is a method to be rejected, as in no operation for stones can one say that all of them have been removed. In his 375th operation he overlooked a stone in the duct which measured  $\frac{1}{4}$  inch in diameter. This he removed later. Hence, the return of the sutured gall bladder is wrong. He has had a recurrence of pain and inflammation in 6% of cholecystotomies. He has performed 64 cholecystectomies in which he has as yet seen no recurrence. Before performing cholecystectomy he carefully searches the bile ducts. He prefers to separate a shrunken gall bladder as soon as possible from the lower surface of the liver so as to allow access to it. He reports the highest mortality in cases complicated by cancer of the pancreas, etc.

In 86 cases collected from literature, he finds a mortality of 31% following choledochotomy. His own choledochotomies give .6 of 1%. Of his 200 patients, 151 were women and 23 men. Of the women, 133 were married, 117 had borne children and 18 were single. He records 1 death in 127 operations for stones in the gall bladder or in the cystic duct. In 21 cases of cholecystectomy, where the gall bladder was shrunken and the cystic duct obliterated, he cites 1 death. Stones in the common duct, choledochotomy, 81 operations and 2 deaths. In 17 cases complicated with carcinoma, etc., 10 deaths and 7 relieved.

In 162 operations on the liver and bile passages at the Heidelberg Clinic, Peterson<sup>45</sup> found reduc-



ing substances in the urine in 23 of 24 cases. In 10 cases he made a diagnosis of stones, but found pure cholecystitis or extensive adhesions. In 65 cases of cholecystotomy at one sitting, he had 2 deaths, both from cancer; cystendesis, 6 cases, no deaths; cystopexy, 3 cases, no deaths; cystectomy, 10 cases, 2 deaths; cystotomy, 7 cases, 1 death due to peritonitis; choledochotomy, 20 cases, 4 deaths, 1 due to cholemia, 1 to secondary hemorrhage and 2 to peritonitis; choledochenterostomy, 11 cases, in 4 of which the Murphy button was used. He concludes that the normal operation is cholecystostomy at one sitting. Of 80 cases followed up, but 2 had stones after cholecystostomy. The others had no recurrence of symptoms. Herniæ were present in 20%; permanent fistulæ in 8 cases; in 5, cured by operation. No such fistulæ since the use of a drain introduced into the gall bladder before suturing it to the parietal peritoneum.

Bacteriology of 50 cases. Twenty-six cases had the bacillus coli, 6 cases had the staphylococcus and bacillus coli, and in 4 no bacteria were found. The bile was almost always sterile after 2 to 4 weeks of steady drainage. In 1 case, the bile flowed into the peritoneal cavity for 5 weeks without harm as a result of a rupture of the gall bladder. Of 162 cases, 30 had carcinoma; in 4 radical operations for removal were attempted, and of these 2 died, 2 still live, one after 2 months, the other 5 months, without recurrence; 3 cases of sarcoma, operation of no avail in 2. Hemorrhage from liver checked by deep sutures, tamponing elastic ligatures and hot air.

Poppert<sup>46</sup> reports 122 cases: 88 cholecystotomy, 5 cholecystodochotomy, 6 choledochotomy and 14 cholecystectomy. In his last 80 or 90 cases no permanent fistulæ or herniæ. He also advocates an early operation.

Fenger<sup>47</sup> recommends cholecystostomy in 2 sittings. He uses a spiral sound for removal of all stones, advises suture of the duct in choledochotomy, and believes in the expectant attitude in cases where operation is questioned. He reports a number of interesting cases, in one of which he had to resect the ribs to get at the gall bladder, which lay some distance under the liver, displaced upwards under the costal arch.

De Voogt's<sup>48</sup> experiments confirm the assertion of Oddi that ablation of the gall bladder is far from being so serious as generally thought. The gall bladder may grow again after operation, hence the operation may not be effective as a radical measure for gallstones. It is indicated in cases of neoplasm or degeneration of the organ.

Murphy<sup>49</sup> of Chicago prefers cholecystenterostomy in impacted stones of the common duct as against choledochotomy. This operation quickly relieves the tension in cases of obstruction of the common duct with inflammatory symptoms. If jaundice be present, he prefers to do a cholecystotomy, cure the jaundice first, then operate for stones.

Walker<sup>50</sup> of Detroit advocates cystendesis, closure and return of the gall bladder into the peri-

toneal cavity. Kelly<sup>51</sup> of San Francisco raises objection to the cholecystenterostomy, as infection from the intestine to the liver is possible.

Van Der Veer<sup>52</sup> of Albany urges the necessity for early diagnosis. In suppurative cases, examine for deep-seated stones. He advocates drainage by lumbar stab through peritoneal pouch in cases of prolonged operations on ducts, where adhesions exist. Operation is too late in cases of cholemia with ecchymosis, etc. Stones may cause cancer of the ducts, liver, etc. Patients should be informed of this fact.

Perkins<sup>53</sup> of Denver advises, in closing the wound, suture of the gall bladder to the abdominal wall with catgut. Stitches to close the parietal wound pass entirely through the abdominal wall. Those which are opposite the gall bladder are passed through the abdominal wall, then through the gall bladder, emerged from the gall bladder before reaching incision in it, carried across incision and made to enter the gall bladder on other side of the incision, finally through the abdominal wall like Lembert suture.

Richardson<sup>54</sup> states that he now operates as frequently at the Massachusetts General Hospital for gallstones as hysterectomy. The mortality depends on the time of operation. History of intermittent colic and jaundice points to gallstones, yet may be appendicitis. Exploratory incision is justifiable. The so-called ideal method, cystendesis, is dangerous. It is good surgery to excise the gall bladder in all cases where it is necessary to incise the duct. There is an analogy between the appendix and the gall bladder. Early operation is advocated. The bacillus typhosus was found by Richardson in the gall bladder in 5 cases. He also found the colon bacillus.

McBurney<sup>55</sup> advises the method of cystotomy of Jones of Nebraska. He inverts the orifice made in the gall bladder by the knife so that the peritoneal coats may be brought in contact. Thus the fistula may close in 48 hours after removing drainage.

Anders<sup>56</sup> advocates auscultatory percussion; relax abdominal wall, sink fingers deeply into gall bladder region; patient takes a deep breath, and the stethoscope is held just below the ribs, when gallstone crepitus may be heard.

Kehr advises in an acute case of serous or purulent cholecystitis, cholecystotomy; in the free interval, cholecystectomy. Open the cysticus and choledochus and drain the hepaticus.

(To be continued.)

## FAULTY UTERINE GROWTH.<sup>1</sup>

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THE subject under consideration is so commonly known that I feel as though I ought to state at the outset that to most of you much that

<sup>1</sup> Read before the Section for Obstetrics and Diseases of Women of the Suffolk District Medical Society Nov. 27, 1901.



will be read will probably seem most trite, still, if, as I believe, one or two new elements may be infused, perhaps our time will not be wasted.

Much has been written regarding faulty developmental conditions of the female generative organs, but many of the writings are merely quotations of former authors, or a different wording of the same text. If, perchance, what I am to say is old to you, it at least possesses the merit of being original with me, and careful search of textbooks and of many articles since the first by Simpson, has failed to show that it lacks absolute originality.

The reason for my choosing this subject is that more especially during the past three years a considerable number of these cases have come under my observation.

It has seemed to me that the uterine ligaments play a considerable rôle in these cases, and that unless proper attention be paid to them success in treatment is much more difficult, if not unattainable. In no article, either in textbook or journal, have I been able to find any allusion even in the least to this factor, and I wish to submit to the judgment of others whether or not my observations have been correct.

Starting at the beginning of normal development we know that in the female all the genital organs come from the Müllerian ducts, except the ovary, which is developed from the genital ridge from the mesial side of the Wolffian body. We know that writers ordinarily state that all that remains of the Wolffian body in the female adult is the parovarium, neglecting to mention that the round ligaments are also remnants of a very important part of the Wolffian body, namely, its inguinal ligament.

The round ligament begins to be of importance early in fetal life. L. Fürst, as quoted by Pozzi in his third edition, says that at the end of his (Fürst's) second developmental period, from the fifth to the twelfth week, the partition of the genital canal has totally disappeared; the fusion of the Müllerian ducts is carried higher; the insertion of the round ligament separates sharply that which will be the tube, above, from that which will be the horn, below.

This early differentiation of the round ligament and its comparatively prominent part in the later development is simply referred to here to bring out the fact that from the first the development of the round ligament goes on *pari passu* with that of the uterus, tubes and ovaries. The significance of this seems to me this: any factor influencing, at any time, the development of the uterus, would also influence the round ligament. Another reason why the round ligaments assume an important rôle is that they alone of all the uterine ligaments contain a considerable amount of fibrous tissue and a certain amount of muscular tissue, slight it is true, but still sufficient to differentiate it from the other uterine ligaments, which are practically folds of peritoneum. Whether cases of uterine developmental errors such as the bipartate, bicornate, unicornate, etc., are accom-

panied by abnormalities of the round ligaments it is difficult to ascertain, as these conditions are never fatal, and I have been unable to find any satisfactory observations noted.

However, I wish to deal more with faulty growth than with faulty development. Experience has seemed thus far to teach us that treatment of the latter condition is absolutely futile. So far as these cases of faulty growth are capable of classification I have separated them into two classes, considering as growth any postnatal change. These two classes comprise (a) inhibition, or absence of growth, and (b) tardy or delayed growth. In the former the uterus maintains the infantile characteristics of long cervix, small body and antifixion, and in the latter a certain slight amount of growth has gone on, but growth at puberty failed. In the former class the distinguishing characteristic is the length of the cervical canal, which exceeds the length of the cavity of the body. In the second class the two cavities are of equal length, or that of the body is slightly the greater. It is in this latter class that treatment seems to be of value, and in which a hopeful prognosis may be given. In the former class, that is, the so-called fetal uterus, a very doubtful prognosis must be given, as in only a very small minority can any benefit result from any known form of treatment.

Given even the most favorable case, very much depends upon the attitude of the patient. If she be impatient, unwilling to devote herself first and before all to the task of getting well, the gynecologist will gain more credit and satisfaction from declining to treat the case than in interrupted and spasmodic attempts.

The least time in which I have ever been able to discharge a patient was nine and one-half months, and then she was discharged only on condition that she should immediately report the least lapse from regularity of menstruation or symptom of any kind. At the other extreme stands a patient discharged "on probation," as it were, last month after two years of constant treatment.

Müller of Berne says in the "Encyclopedia of Obstetrics and Gynecology," that when the patient is robust, the general health good, and no local disturbances are present, it will be best to avoid any action. I quote this merely to take occasion to emphatically disagree with it. The most that our treatment aims to accomplish is the establishment of a normal growth, and nothing else will further our efforts to so considerable an extent as a good general health, with good appetite, strength to take a sufficient amount of outdoor exercise, and good assimilation.

Then, too, I must disagree with the overcareful practitioner, who carries his wish to avoid subjecting a young girl to local treatment to too great lengths. Of course we must all admit it is far better to err on this side than on the other, and we will all agree that best of all is a wise discrimination which teaches us when to subject our young patients to this ordeal. If in doubt, per-

sonally I consider it far wiser to counsel a first diagnostic examination under anesthesia, than to lose valuable time in false delicacy.

Regarding the above citation from Müller it should be said that but few cases are seen to which his statement applies. Most cases are seen in girls who may be well nourished, but who show other evidences of tardy, or lacking, growth. A large majority of the cases personally observed have been in girls slight of frame, small of muscle and of low stature. Many of them even at 16, or even up to 20, years of age retain a marked look of childishness. Faulty mental development has very seldom been observed as a concomitant condition.

Patients requiring our care for faulty or delayed growth of the uterus almost invariably come for advice at three critical periods in a woman's life. First, they are brought to us at from 15 to 17 years of age by careful mothers who wish to know why their daughters manifest either no menstrual phenomena at all or but very irregular and scanty flow at long intervals. It is practically always, both in the foregoing and following classes, the amenorrhea which brings the patient to our attention. In the second class we find the young women who have several years ago passed the age of puberty, and either neglect or false ideas of modesty have prevented them from receiving proper attention. These come to us as to the advisability or propriety of contracting marriage. There are a third few who have passed both periods and only come to us after marriage. The prognosis, other things being equal, gets less favorable with each class, and in women who have passed the period of growth, say arbitrarily 22 years of age, treatment holds out but very little hope.

These cases may or may not be accompanied by other abnormal conditions than the faulty or insufficient growth, and so far as I have been able to learn, they do not materially affect the prognosis so long as they do not depend upon errors of development dating back to the prenatal period.

The most common accompanying condition is that of antifixion of body, cervix, or both. This is commonly seen in a relaxed, small, thin-walled uterus, and seems most often to be an inability to maintain itself in a proper shape from real muscular weakness. When this is the case it is ordinarily easily ascertained, as the uterus can easily be straightened or even retroflexed by bimanual manipulation, whereas, in larger, firmer, well-grown uteri presenting these antifixions, the position is strongly maintained by fibrous tissue in the angle of flexion.

The diagnosis is not difficult. The history and physical signs are never contradictory. The ordinary case presents a history of an age more or less remote from that of puberty, the patient being usually childlike in face and stature, but almost invariably her intelligence is quite equal to, or in advance of, her age. This would seem to point to the fact that a quiet, sedentary and particularly a studious childhood might play an etiological

rôle. She gives a history of either never having had the slightest menstrual molemina or of having very scanty, abortive catamenia at widely separated and irregular intervals. She is almost invariably of studious or sedentary habit and constipation, in fact, sluggish metabolism is the rule. Almost invariably they are long and sound sleepers. On hearing such a history nothing remains but physical confirmation of a preformed diagnosis. The principal factor in this diagnosis is the uterine probe. Given a uterus in which the depth of the body cavity equals or exceeds that of the cervical cavity, a hopeful prognosis may be given, even though both measurements be small. If the cervical canal in the least exceeds that of the body a most unfavorable prognosis is the only one justifiable.

The treatment must be both general and local. It seems to me safe to say that neither alone will ever in a single instance suffice.

As I have said above, the patients are usually of a sedentary and studious habit, therefore our first indication is to limit very rigidly the amount of time spent in study or work, it usually being best to withdraw such a patient for one year at least from school or a sedentary occupation. Require an active out-of-door life. If their financial status will permit, horseback riding is a great aid, as it favors muscular growth in all directions and helps greatly in the correction of constipation. All forms of gymnastics, Swedish movements, etc., are indicated. It has seemed to me that iron has helped me greatly even in cases in which there seemed not the least anemia. This may be a result of the well-known action of iron in determining an increased amount of blood to the pelvis. The most useful method of administration has been Bland's mixture in combination with extract of nux vomica and extract of cascara. Either by this means or some other the bowels require careful regulation.

As to local treatment, the means most commonly used are old and familiar to you all, and I have had no occasion to add to them. In fact, it is probable equally good results might have been obtained by many methods of treatment which might appeal to others, but were not used in my cases. As in all obstinate lesions, a multitude of remedies have been suggested.

All growth depends absolutely upon a sufficient supply of the component elements of the organ in question, which are, of course, in the uterus and its appendages as in other organs derived from the blood. Therefore, to induce or increase growth it is first necessary to increase the supply of fresh oxygenated blood of the organ in which growth is to be induced. This implies not simply the production of congestion, because in many cases in which the desired growth fails an intense congestion often prevails long after all efforts at stimulating growth have ceased. It is absolutely essential to be certain that this congestion is active and not passive. In no case in which I had failed of an ultimate satisfactory result had I experienced the slightest difficulty in creating a

very decided active congestion, but this invariably within a few weeks gradually took on the dusky, turgid characteristics of passive congestion, and growth stopped, the uterus relaxed and became flabby and receded to nearly its original condition.

The means of inducing this congestion which I have used have, as I said above, not been new. They have been the intracervical application of impure carbolic acid, negative galvanism, and faradism, and these have been supplemented by prescribing for the patient's home use two quart, very hot douches each night.

Great care should be used in all manipulations in these cases to obtain especial cleanliness of all parts and of all instruments, as inflammation is never a factor at the beginning of these cases and is to be scrupulously avoided.

In obstinate cases in which the above produce no result discision may be practised, and has proven almost invariably useful. It appears to induce growth, just as a laceration of the cervix produces overgrowth.

Any of these methods and many others will almost invariably stimulate a growth in the uterus if the case is properly chosen, and undoubtedly all of you have seen a growth begin only to a little later cease, and eventually recede, much to your own disgust and your patient's disappointment. This at least has many times been my own experience until recently, when I have been more fortunate.

The proper method of correcting this retrograde tendency was first suggested to me during the treatment of an entirely different condition. Probably all of you have noted that in performing operations in which hemorrhage, directly or indirectly, from the uterine artery is a factor nothing will more promptly control this arterial hemorrhage than traction on the uterus, downward if operating through the vagina, upward if through the abdomen. It was while operating to repair a lacerated cervix at the time that I was much exorcised over one of these cases of faulty growth, that the application of this principle suggested itself. If uterine growth depended absolutely upon a free and abundant supply of arterial blood, and if even very moderate downward traction shut off or curtailed this supply, and at the same time favored passive, or venous, congestion, it seemed to account for all, or nearly all, past failures. This sagging is of course the inevitable result of an increase of weight in the uterus, with a weak, also undergrown, set of ligaments to support it. There is a very marked tendency to retroversion at this period. It is, therefore, at this point that the importance of the round ligaments, in fact, all the ligaments, comes into play.

After the uterus has begun to grow—not merely to swell—it of course must sag, and the tendency to retroversion is greatly increased if an intra-uterine electrode is used, as the uterus is more or less retroverted during treatment. As all of our efforts to cause the uterus to grow have operated by inducing a considerable increased

arterial circulation, and as the sagging shuts off this circulation, the inevitable result is to stop the growth.

This sagging and retroversion are to be accounted for in two ways, both of which are operative at the same time: (1) The stimulation used to induce growth acts directly upon the uterus and only indirectly upon the ligaments, thus rendering the early growth in the uterus much more rapid than in its supports; (2) muscular tissue is much quicker to take on growth, and being started progresses much more rapidly than the fibrous tissue of which the ligaments are composed. The indication, then, seems plain to properly support the uterus from the start.

Owing to the use of the small hot douches by the patient at home, packings cannot be used, and as a marked tendency to retroversion exists, a pessary becomes the only practical method of giving this support, and I have ordinarily used a small soft or hard rubber retroversion pessary, with or without a bulb, according as the ovaries showed a tendency to prolapse or not. The smallest pessary that will do the work should be used, and, as the patient is so frequently seen, there is no danger of its doing any harm.

By following the above treatment I have been most gratified by results, and patients have gained uteri which gave every evidence physically and functionally of being normal. They have all, moreover, in varying periods, acquired an ability to support themselves by their own ligaments. I have thus far never had occasion to perform any operation to aid the ligaments in their work.

A patient is never to be discharged until she is physically and functionally up to normal, and it has become my rule to require the patient to wear the pessary six months after the uterus becomes of normal depth and menstruation is regular. It is then removed tentatively and the patient seen once a week until after the next menstruation, to make sure that the ligaments are sufficiently strong.

One caution seems to me necessary, that is, that we should satisfy ourselves that the flows of blood patients achieve during this treatment are really catamenia, and that the increase in the uterus is actual growth, as shown by the uterine measurement, and not merely swelling due to inflammatory reaction. Bleeding from the uterus accompanied by swelling are easily induced, but that is not what is desired.

## TREATMENT OF INVERSION OF UTERUS.<sup>1</sup>

BY E. W. CUSHING, M.D., BOSTON,

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THE treatment of recent cases of inversion is a part of the obstetric art and is sufficiently settled and well understood, so that it requires no comment. With chronic cases, however, where the

<sup>1</sup> Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Nov. 27, 1901.

uterus has undergone involution and the cervix has contracted, while adhesions have presumably been formed within the funnel of the inverted uterus, the best mode of treatment is by no means so easy to determine.

Leaving out of consideration the ingenious methods of constant elastic pressure by suitable apparatus, which are frequently successful when used early and faithfully, there remain the inveterate cases where surgical relief is demanded, and where all other measures are futile and really dangerous. For such cases three procedures are applicable: (1) There is the method of Thomas, in which the abdomen is opened and the funnel dilated so that the uterus can be replaced in its proper position; (2) the vaginal amputation of the uterus, which is easy of performance, and which of course cures the malady but robs a woman of her uterus; (3) there is the method of Kuestner, by which the cul-de-sac of Douglas is opened from the vagina, the funnel dilated if possible, and the uterus replaced, or, if this cannot be accomplished, the uterus is incised on its posterior aspect, as far as may be necessary to accomplish its reposition, and then the incision in the uterine tissue is sewed up, and the opening in the posterior vaginal fornix is closed. As a modification of this operation the anterior fornix may be incised, the bladder separated from the uterus, and then the latter may be incised anteriorly as far as is necessary, when the fundus is replaced, its incision sutured, and the uterus fastened forward by the method of Mackelrodt.

The operation of Thomas, which at the time when it was devised by him certainly was a bold and ingenious procedure, has fallen into a desuetude which I believe is unmerited. As described and figured by him in 1872 it consisted in laparotomy, followed by dilatation of the funnel, guided by the sense of touch in the depths of the abdomen, and naturally it was both difficult and dangerous. His first case was successful, although the vagina was torn, presumably so as to open the peritoneal cavity from below. His second case died. Mundé attempted the operation in 1888, but could not reduce the uterus, and therefore contented himself with removal of the ovaries, afterwards amputating the body of the uterus with the elastic ligature. Kelly reported an attempt at Thomas' operation, with failure to reduce the uterus. As far as I can learn it has never been performed in this country except in the instances above mentioned, and all the cases recorded number 12, with 7 successes and 5 failures, of which 2 were fatal.

The weight of surgical authority, as evidenced by textbooks, seems to be against the operation; for instance, Pozzi does not approve of it; Martin considers Thomas' operation as a last resort in cases of irreparable uterus, but does not think it is safe, considering the possibility of adhesions in the funnel; he prefers amputation of the inverted corpus. Auvard, 1892, suggests that perhaps Thomas' method could be tried again, although one out of two cases was fatal. He appears to pre-

fer amputation by vaginal hysterectomy. Dudley, 1900, says only that Thomas' method has fallen into unmerited discredit. Other authors have very little to say as to what operation should be selected.

The vaginal methods seemed to offer various advantages, and, like vaginal hysterectomy and the vaginal operations for salpingitis, it was an improvement on former abdominal methods and a valuable procedure during the transition to modern and perfected abdominal procedure. It has the various disadvantages, however, of all vaginal operations in comparison with the corresponding abdominal procedures, which have caused the latter to be preferred lately, since abdominal technique has become so perfect.

Although, with others, I have formerly been satisfied to remove the inverted fundus by vaginal hysterectomy, yet in a case which recently came under my care I decided to use Thomas' method, for the following reasons:

This method has never been tried since the introduction of the Trendelenburg position, and there is reason to suppose that this posture will be as much of an advantage for cases of inversion as for cases of hysterectomy.

In case there be any adhesions, it is evident that they can be separated with more care and discrimination in operating from above, provided the Trendelenburg position is as useful as it may fairly be expected to be.

The uterus having been replaced, it is evident that the ligaments which are to support it will be elongated and weakened, and it will presumably be advantageous to fasten the fundus to the abdominal wall, thereby holding it in a proper position and averting any chance of a recurrence of the inversion.

The uterus having a great tendency to bleed and the patient being exsanguinated, it is clear that less blood will be lost if all the manipulation can be done from above, while the patient has the pelvis elevated and the ovarian and uterine arteries can be compressed.

The whole operation will be cleaner and with less chance of septic infection, if it is not necessary to open the cul-de-sac of Douglas, as must be done in Kuestner's operation. I am aware that in some cases a modification of the latter has been proposed, whereby the peritoneal cavity is not opened, but only the cervical portion of the uterus is divided in the vagina, and thus by pressure on the inverted fundus it may be reduced. In this method, however, we remain in ignorance of the presence and condition of adhesions in the funnel, and there is a chance of injuring or even perforating the fundus without knowing it, and if at the moment of reduction there is any tearing of the peritoneal surface of the uterus or injury to the blood vessels, there is no means of knowing it or of repairing the damage.

Mrs. X., age 25, was admitted to my service at the Woman's Charity Club Hospital, suffering with severe hemorrhage, with the following history: She was de-

livered of her first child 14 months previous to admission, and had severe shock and hemorrhage, but her condition was not recognized by her physician. She had a slow convalescence but finally got up and tried to resume her household duties, but could not perform them. At each monthly period she flooded profusely. Finally, after a year of suffering and weakness, she sought advice of another physician, who examined her and made the diagnosis of a uterine polyp. He gave her ether with the intention of removing it, when he discovered the nature of her trouble, and desisted. He advised her to enter a hospital, and in fact she did enter a large general hospital. Here it was proposed to remove the uterus *per vaginam*, but she did not feel satisfied to lose her uterus, and left the hospital and entered my service. On examination the vagina was found to be occupied by the inverted uterus, which bled freely on the slightest touch. It was about the normal size, or only slightly enlarged, felt hard and was quite irreducible. Its position was such, and it occupied the vagina so fully, that any attempt to remove it or reduce it by Kuestner's method would have been difficult in execution.

The patient was very anemic, and the flooding at the last period had been so severe that her life had been considered in great danger at that time. The next period was due in a few days, and it seemed best to do nothing until that was safely over. She was therefore put on generous diet with iron, etc., and when menstruation came on the vagina was kept firmly packed with gauze, and the foot of the bed was well elevated. In this way loss of blood was prevented almost entirely. At the operation, which was performed a week later, I had the efficient assistance of Dr. Elizabeth Riley.

When the abdomen was opened the patient was put in the Trendelenburg position, and the intestines being packed out of the way and covered with pads, the funnel of the inverted uterus could be seen at the bottom of the pelvis. I was much pleased to find that gentle traction on the round and broad ligaments brought the uterus up, and when to this was added moderate upward pressure by the hand of my assistant in the vagina, the top of the funnel, with the ovaries and tubes, could be easily brought outside the abdomen.

I now attempted to dilate the funnel with a Sims' dilator, and when it was somewhat enlarged I used a Goodell dilator. The tissues were exceedingly dense, and gave very little and very slowly. Still, something was gained, and moderate taxis in the vagina and moderate traction on the round ligaments kept all that was gained. It was slow work, but I knew that in the long run the steel dilator must overcome the resistance of the uterus, and I was more afraid of tearing than of delay. After about 20 minutes of dilatation and traction, with aid from the pressure through the vagina, the organ was all reduced except the fundus itself, and I was afraid that I should have to incise the resisting tissues, when suddenly out popped the fundus and the uterus was right side out again. At the moment of reduction the peritoneal surface of the fundus tore, not very deeply, but sufficiently so to require a catgut suture. There had not been many adhesions of the ligaments and tubes in the funnel, but now the whole organ had no support and would fall in any direction; so the fundus was stitched to the abdominal peritoneum, and the abdomen was closed.

Convalescence was uneventful. The cavity of the uterus was washed out repeatedly with an antiseptic solution. The patient went home well and has had no more hemorrhages.

My experience in this case was in entire conformity with what I expected *a priori*, and I think it justifies me in claiming that the use of the Trendelenburg position is of so great advantage in Thomas' operation for inversion of the uterus, that with this modification it becomes the operation of election, being easier, safer, cleaner

and more surgical and satisfactory than any other. Referring to the illustrations of the original operation, where the dilatation had to be done blindly in the depths of the pelvis, it is easy to see that the method would not be satisfactory today. In fact, I could never have succeeded in this case by the original method. It is very different, however, when the uterus is brought up to or outside of the abdominal wall, when the intestines are out of the way and well covered up, so that there need be no hesitation in taking plenty of time for the dilatation. If it is objected that not all cases would permit of thus lifting up the uterus, I would reply that, at any rate, by opening the abdomen we can find out whether the organ can be brought up and whether there are adhesions present, and as the ligaments are always relaxed and elongated there is every reason to suppose that they will in all cases permit of the substantial elevation of the uterus to a point where dilatation can be employed under the guidance of sight.

### VARIOLA, OR SMALLPOX.<sup>1</sup>

BY JOSEPH E. DUXBURY, M.D., LONSDALE, R. I.

THE subject I have chosen for my paper tonight is one which the general practitioner of today is necessarily unfamiliar with, and it is only through some unforeseen circumstance that we are enabled, in this country at least, to study this dreadful disease. It is only upon the advent of a local epidemic or an occasional isolated or sporadic case that we meet with it at all, and, consequently, the physician in general practice is seldom called upon to treat a case of smallpox. And although one of the great triumphs of modern medicine has been the stamping out of this terrible disease, it is still so frequently with us that we should be on our guard and, if possible, be able to diagnose it when it confronts us.

Therefore, I believe it to be the duty of a physician coming in contact with cases of this nature, to study them conscientiously, so that his observations may be of practical benefit, not only to himself but to the profession at large. It is for this reason, Mr. President and gentlemen, that I have chosen this as my subject tonight, and it is for this reason that I will try to confine myself to the cases I have actually seen rather than to a discussion of smallpox in general. I refer, of course, to the late epidemic in our own State in the town of Lincoln, and, as you know, I was appointed especially to handle the matter to the best of my ability, in the village of Manville, where the epidemic was in progress. The importance of diagnosis and the difficulty of diagnosis was well shown in this epidemic by several physicians of large practice, openly stating that it was not variola at all, but chickenpox, and I believe no one was able to positively diagnose

<sup>1</sup> Read at the Annual Meeting of the Pawtucket Medical Society.

the disease but the physicians who were brought in direct contact with it from day to day.

Although this paper is intended to apply more to our recent epidemic, I think it advisable in the beginning to present an outline of the principal symptoms of smallpox as laid down in our works on "Practice."

Variola, or smallpox, is designated as a specific contagious and febrile disorder, characterized, when unmodified, by the appearance in succession upon the cutaneous surface and occasionally also upon the mucous surfaces, of papules, vesicles, pustules, crusts and cicatrices. This *succession* of lesions characterizes the disease smallpox. As is well known, the variations of this malady as to the severity, character and duration of its symptoms are so great as to preclude the possibility of its complete description in a paper of this kind, still, it is nevertheless necessary, for purposes of comparison, to outline a typical case of the disease.

The period of incubation varies from 10 to 20 days, and usually occupies about 14 days. It is ushered in by a chill, succeeded by a fever, with a temperature of 103° to 105°, which is commonly associated with characteristic pains in the loins, headache, nausea and vomiting, and in young children, occasionally convulsions. During this stage a condition of erythema may exist, especially in menstruating or pregnant women, which is a positive sign that we have a disease of unusual severity and possibly smallpox to deal with. This symptom has been mentioned by some authors as being characteristic of the disease, but you will find that they always depend for a positive diagnosis upon other corroborative symptoms, for example, the pain in the back and loins and headache, which are characteristic. On the third or fourth day after the appearance of the efflorescence, the patient will be seen with the face and scalp covered with pin-head sized and larger, firm conical papules, feeling, as has usually been described, like gun-shot under the skin. Later, these develop on the trunk and limbs, and in well-marked cases every portion of the surface of the body is invaded, including the palms and soles, and when found in the latter situations, being quite diagnostic. As a rule there is complete defervescence when the exanthem appears, the patient feeling quite relieved. During the first two days of the eruptive period the papules increase in number and are correspondingly agglomerated, with the color changing to a darker red; and if they are watched closely at this time, a little lymph will be seen to appear in the summit of each, gradually developing into vesicles during the next two or three days.

From the fifth or sixth day the contents of the vesicles which have formed will begin to take on a milky appearance from the admixture of pus-corporcles, so that by the eighth to the twelfth day pustules have fully formed and the disease has entered the *stage of suppuration*, the process beginning, as in all the metamorphoses of the disease, in the lesions of greatest age. Beginning with the appearance of the vesicular element of

the papule (which has now attained the average size of a pea) a peculiar umbilication will be observed, which is one of the most characteristic diagnostic points of the disease, especially when the edge is corrugated or has the appearance of being divided into compartments, which finally shrivels and dries up or gives way to distention and rupture and the formation of crusts. At this time the patient is usually in a most distressing condition. The skin between the lesions is red and swollen, and owing to the tumid eyelids, the edematous lips, disfigured nostrils and pus-obstructed mucous outlets, the features are almost indistinguishable. Itching of the surface is now almost unbearable, and very often the amount of disfigurement resulting is governed by the ability of the patient to resist this temptation.

The stage of *dessication* occurs about the twelfth day of the disease, beginning in the lesions of first appearance. As the drying continues, the redness, tenderness and edema of the skin lessen and the patient assumes a more natural appearance. At first the crust is quite adherent, but about the fourteenth day it becomes loosened and falls, leaving a reddish brown stain which lasts for five or six weeks. Pitting of the skin as a result of the lesion does not always occur, and in fact is less common than many suppose. This point has been used a great deal by men who never saw a case of the disease, to prove the non-existence of smallpox. But when we remember that pitting depends upon violent removal of the crust by scratching or otherwise necessitating a renewal of the scab, it is easy to see why it may occur or be prevented. This is further proved by the fact that chickenpox very often leaves cicatrices to mark the site of the disease. Again, the young people of this country at the present time are more particular and careful of their personal appearance than persons of the past, especially of foreign birth, and in this country nearly all of our smallpox patients, especially severe cases, are treated in hospitals where removal of the crusts is guarded against instead of leaving the patient to himself and his temptation to scratch.

Dessication usually requires from 2 to 15 days for its completion, after which convalescence begins, so that from 4 to 6 weeks are required to complete a cure in a typical case of variola of moderate severity such as I have described.

As regards *treatment*, I will say that outside of rigid and proper hygienic care of the patient the less medication he receives the better he will get along. To be sure, complications that may arise must be promptly dealt with. This is another point the antismallpox agitators enlarge upon. They say it cannot be variola because when not treated at all the patients get well. I admit this; but when they say the cases were not treated at all they mean they were not dosed and filled up with drugs, but it is very probable that the hygienic necessities of the case were carried out to the letter, and we all know that this is very important and efficacious treatment in any case,



and not confined to smallpox alone. I think we will agree that uncomplicated cases of scarlet fever, measles, etc., get along very nicely if only proper hygiene is carried out, so that, to my mind, it is foolish to claim that this cannot be smallpox because it was not necessary to feed the patient with drugs.

In conclusion I will compare the foregoing description of a typical case of smallpox with cases coming under my personal observation during the recent epidemic in Manville. As we all know, the majority of the cases referred to were of a mild form, and in this respect they correspond with cases that have been reported in different parts of the country within the past year or two; and although there seems no doubt in the minds of those members of the profession who were brought into most direct contact with the disease, there were a few who were ready to claim that it was not variola at all, but varicella, or chickenpox. As for my own opinion, after handling over 50 cases, I am positive it was genuine smallpox we had to deal with. Opinions to the contrary were readily volunteered by laymen who were not supposed to know any better, backed by a few medical men who not only had not seen one of the cases they claimed to know all about, but had never seen a case of smallpox at all. It is true the disease was of a mild form, although we had three or four very bad ones in which the eruption covered nearly every bit of the external surface of the body—but must every patient die in order to prove a diagnosis of smallpox? Must every patient with scarlet fever or diphtheria die before we will admit the nature of the complaint? The late Professor Loomis once remarked to me that he had never seen a genuine case of diphtheria recover, and although that may have been true at that time, it certainly is not the case today, because great improvements have been made in the care and treatment of diphtheria, and I am sure they have been equally as great in variola. As to the cause of the mildness of the recent epidemic throughout certain parts of the country, I do not pretend to dogmatize, but it seems plausible that, inasmuch as the disease has been nearly entirely obliterated, the severity of certain cases may have been mitigated. I surely can see no reason why we should not have a mild case of smallpox as well as a severe case.

It is well known that certain epidemics of scarlatina are mild, while in others the death-rate runs high. The claim has been made that the disease did not follow the symptoms as laid down in our textbooks, and that has been partly admitted by the other side, but I go further, and say the symptoms and the succession of lesions (which I claim is diagnostic) in the cases coming under my notice were almost identical with those taught in our works on diseases of this nature, the only difference and variation being in their severity.

As in the beginning of this paper, I say that variola is distinguished by certain symptoms and lesions, such as headache, pain in back and loins, followed by the appearance of papules, vesicles,

pustules, crusts and cicatrices, and it is the regular succession of these symptoms that is diagnostic of the disease, and in the 50 cases I saw they were typical in this respect. The headache and pain in the back were so marked that it was common to hear the patient say he knew he was going to have the disease from the severe headache.

The average age in 51 cases coming under my notice was 14½ years, which is too high an average for it to have been chickenpox, it being rare to find this disease in one over 14 years. After the premonitory symptoms and the appearance of the eruption the lesions progressed to their final destruction in regular order. The shot-like feeling, the vesicular element, the umbilication and the corrugated appearance were all present one after another, and finally cicatrices were left to mark the site of the disease, although more marked in some instances than others. Varicella, or chickenpox, does not run this regular course. From the appearance of the rash in the beginning in any form, they seem to jump into the form of a scab. It is not even a crust, as in variola, but a fresh scab, and, as one author says, "the child can easily rupture the vesicle," which is a good point. The vesicle of variola is very tough and goes on almost to the end without rupture, and, in fact, often does so, while this, I may say, never occurs in chickenpox, all the vesicles rupturing themselves even if left alone.

Finally, I will say that the eruptive disease occurring in the epidemic in Manville during the months of June, July and August of the present year was positively smallpox, and although I realized a negative diagnosis would have been hailed with delight by the community, I could conscientiously form no other opinion.

It is true there were persons who did not agree with me, but I was fortunate in having Dr. Swarts of the State Board of Health, whose ability as an expert on diseases of this nature was recognized by a subsequent interstate conference, corroborate my diagnosis.

## Medical Progress.

### RECENT PROGRESS IN GYNECOLOGY.

BY F. B. LUND, M. D., BOSTON.

#### RESULTS OF VAGINAL HYSTERECTOMY FOR CANCER.

KNAUER<sup>1</sup> gives a careful and interesting review of the results of vaginal hysterectomy in Chrobak's clinic, in the 10 years and 6 months from January, 1890, to June, 1900. The total number of cases of cancer of the uterus presenting themselves for treatment during that time was 1,374, or about 3.4% of about 40,000 gynecological cases. The total number admitted to the wards for treatment was 760, of whom 9 refused operation, and 1 died of an intercurrent affection, so that 750 cases remain to consider, upon 236 of

<sup>1</sup> Beitr. zur. Geb. u. Gynecol., 1901, II, 205



whom radical operation was possible, and 514 were inoperable. Radical operation was therefore practicable upon 32.8% of the cases admitted to the wards. Radical operation was performed in 236 cases, in 213 the procedure adopted being vaginal hysterectomy, in 23 cases other methods, high amputation of the cervix, Freund's operation, or extirpation by the sacral route.

To restrict the cases to vaginal hysterectomy, we must omit the 23 cases in which other operations were done, and are left with 213 vaginal hysterectomies in 727 cases of cancer, making the percentage suitable for radical operation, 29.2.

The percentage of operable cases to the total applying at the clinic for treatment, was 213 out of 1,374, or 15.6. This notable difference may be explained by the fact that many inoperable cases were not admitted for want of room, and sought treatment elsewhere, while the operable cases were generally admitted.

The care necessary in the compiling and exegesis of statistics is made evident by the fact that the percentage of these cases suitable for radical operation by vaginal hysterectomy has been estimated at from 5 (Gusseron) to 61 (Schuchardt), and 92.9 (Mackenrodt). The low percentage of operable cases in Chrobak's clinic (15.6 to 29.2) Knauer explains by the large proportion in which the disease had advanced outside the body of the uterus.

In 93 out of 188 operated cases the disease had progressed beyond the uterine body, and of these 8 died as a result of the operation. In 68 the disease was limited to the body, and of these 1 died; and in 27 the extent of the disease was in doubt; of these 3 died.

Cases were considered operable when the operator thought that the dissection could be carried out in healthy tissue, or when the disease had not extensively invaded the boundaries of the uterus either toward the vagina or the broad ligament.

The total number of vaginal extirpations done was 234, of which, as before explained, 21 are left out above, because the dissection was carried through diseased tissue, and the operations could only be considered palliative. Seventeen of these latter cases could be traced after operation, and only 4 were alive at the end of a year.

Operations upon carcinoma of the uterus, which has progressed beyond the uterine body, are, therefore, though of great value for the relief of pain, discomfort from foul discharge, etc., not successful to any extent in prolonging life. Partial operations, such as high amputation of the cervix, etc., are in general to be preferred in these cases to total hysterectomy.

Of the total 213 cases in which radical operation by vaginal hysterectomy was done, 158 were cancers of the portio, 26 of the cervix, 27 of the body, and 2 were carcinomatous polypi. Twelve died from the operation, the most frequent cause of death being sepsis; 1 death resulted from ligature of the right ureter and kinking of the left,

and 1 death from the anesthetic. The mortality from the operation was 5.6%.

Of the 201 cases which survived the operation all but 19, a total of 182 cases, were followed after the operation from 1 to 11 years, and of these 6 died of other causes from 1 to 7 years after operation, leaving 176 cases upon which to estimate the therapeutic results of the operation.

"Permanent cure" is estimated on the basis of a freedom from recurrence 5 years after the operation, thus making available the cases operated between January, 1890, and May, 1896, 78 in number (after subtracting 9 not traceable, 7 dying from the operation and 3 of other diseases). In 51 of these 78 cases recurrence took place, in 27 there was no recurrence, making a percentage of cures, therefore, of 34.6, which, considering the nature of the disease, is a very favorable showing for the operation. Of carcinoma of the cervix and vaginal portion, 22 out of 70 cases, or 31.5%, were cured, and of carcinoma of the body 6 out of 8 cases, or 75%.

Comparing the cases cured by radical operation with the total admitted to the wards, we have a percentage of operable cases of 29.2, of which 34.6 were permanently cured, making a percentage of 10.1 of absolute cures of the cases admitted for treatment. Comparing the cures with the total presenting at the clinic we have 5.39% of curable cases. A fair estimate of the total percentage of cures in all cases would probably lie midway between the two, or about 7.7.

The percentage of cures to cases treated corresponds closely with Winter's estimate for the Berlin clinic, 9.4; Leopold's, 10.2; Thorn's, 8.7; Kaltenbach's, 8.4.

It is therefore probable that from 8 to 10% of cases of carcinoma uteri presenting themselves for treatment are curable by radical operation. The cases suitable for radical procedure cannot always be accurately determined before operation, and of the cases in which radical operation is successfully performed, 34.6% will be without recurrence at the end of 5 years. A review of the cases in which the carcinoma was found strictly limited to the uterus, showed that 22 of 23 such cases recovered from the operation, and 13, or 59%, were permanently cured, a showing which emphasizes sufficiently the importance of early diagnosis and operation in these cases.

A review of the 116 cases operated between 1896 and 1900 naturally throws no light on permanent cures. Five of the 116 cases died from the operation. The improvement in mortality the writer attributes to improvements in technique, notably the employment of Schuchardt's paravaginal incision, the use of the pressure forceps instead of ligatures, and Mackenrodt's extirpation with the cautery. The use of the cautery instead of the knife is believed to have a favorable effect in preventing recurrence from inoculation. In the total of 234 vaginal hysterectomies one or both ureters were injured 3 times, the bladder 4, and the rectum once.

## SCHUCHARDT'S PARAVAGINAL INCISION IN VAGINAL HYSTERECTOMY.

In order to gain free access to the uterus in vaginal hysterectomy, especially in cases where the disease has somewhat invaded the broad ligaments and an extensive dissection is required, Schuchardt<sup>2</sup> recommends a paravaginal incision by means of which the perineal tissues may be freely spread open, and the uterus drawn downward so that the dissection is easily carried on under the guidance of the eye. As median section of the perineum would involve the rectum, the incision must be carried to one side; therefore the author recommends the following procedure:

The patient being in the lithotomy position and the thighs well flexed and held by assistants, the operator grasps the posterior portion of the left labium and vaginal wall between the thumb and forefinger of the left hand, while an assistant grasps the central portion of the labium with the thumb and forefinger of the right hand and makes tension upon it.

The incision is carried slightly outward and then downward far enough outside the rectum to escape the sphincter ani, and slightly inward to the sacral region. With the first cut the incision is carried as deep as the left vaginal cul-de-sac. The resulting venous hemorrhage is stopped with sponges, the rectum being drawn well to the right, as the wound is retracted and operation proceeded with by carrying the upper end of the incision around the portio, freeing the bladder by blunt dissection or a few scissors cuts, opening Douglas's cul-de-sac, forcing forward with the left index finger in the fossa, first one and then the other parametrium, and tying off the latter by means of sutures passed as far as possible from the uterus with short, thick, full-curved needles. The parametrium is then divided, and access gained to the broad ligaments, which are dealt with in a corresponding manner. The uterus is manipulated during these manœuvres by an assistant by means of a thick silk ligature passed through the cervix and employed as a retractor. The removal of the uterus when this incision is employed requires only 8 to 10 minutes. The wound is closed by suturing the opposing peritoneal surfaces with catgut, the stumps of the broad ligaments being brought into the upper angles of the wound so that their cut surfaces project into the vagina. After ligation of bleeding vessels the superficial wound of the skin and vagina is carefully closed without drainage by deep and superficial sutures. Primary union generally occurs. By means of this incision vaginal hysterectomy, which is often rendered difficult when the usual methods are employed, both by narrowness of the vagina and by cicatricial narrowing of the parametrium, becomes a simple and easily managed operation, and even extends the field of the vaginal operation to cases heretofore considered inoperable, or operable only by the sacral or abdominal routes. Invasion of the vagina by the growth is also easily dealt with

by this method, as a considerable portion of the vagina may be easily removed, together with the uterus, and diseased tissue in the parametrium may be thus reached more easily than by any other method. The mortality of the operation is no higher than by other methods, although the facility of the procedure leads the operator to undertake a larger number of cases of extensive disease.

Schuchardt's statistics regarding recurrence are very favorable, as he found out of 25 cases of carcinoma operated over 5 years before, 10, or 40%, without recurrence. The total mortality of the 58 cases of carcinoma, including these in which vagina or parametrium or both were invaded, 59 in number, was 10.17%. In only 9 of these cases was a simple operation, uncomplicated by extension of the disease, possible, and none of these died.

## INSTRUMENTAL PERFORATION OF THE UTERUS.

Krusen<sup>3</sup> reports an interesting case in which this accident occurred, and gives a brief discussion of the subject. The conditions which favor such injury are those which cause abnormal fragility of the uterus. When the body of the uterus has been invaded by carcinoma, the effort to obtain a specimen for examination may prove disastrous. Atrophy, anemia and tuberculosis are causes of abnormal fragility of the uterus, as is also frequently recurring pregnancy with a short interval between the labors. Attempts to explore or curette the uterus immediately after labor or abortion must be made with unusual care, owing to the softened condition of the uterine muscle. A failure to recognize the position of the uterus, which may be acutely anteфлекed or retroфлекed, may lead to injury, because the physician fails to properly direct his instrument, which may perforate at the point of angulation. Proximity to the menstrual period, when the uterus is much congested and softened, may contribute in a high degree to the possibility of uterine injury. Perforation may be either partial or complete, cervical or fundal. In one unpublished case the cervix was perforated laterally, and the omentum drawn into the vagina. The results of such injury may be: (1) Infection, due to sepsis of an instrument or the canal; (2) hemorrhage, which may be sufficient to induce considerable shock; (3) visceral injury, the intestine or omentum being injured by the instrument or drawn into the uterine or vaginal canal; (4) the introduction of toxic material into the peritoneal cavity (chemical antiseptics).

Peritonitis from any of these causes is naturally more common from perforation in the hands of a criminal abortionist, due to uncleanness and unskillful manipulation. The diagnosis is usually easily made by the sudden slipping of the curette clear up to the handle into the canal, a sensation which once felt is never forgotten. It is possible but rare for the instrument to slip into a Fallopian tube.

<sup>2</sup> *Monatssch. f. Geb. u. Gynecol.*, 1901.

<sup>3</sup> *American Medicine*, Dec. 14, 1901.

When simple perforation of the uterus has occurred under aseptic conditions without symptoms of shock or visceral injury, no operative interference is indicated. In all cases where visceral complications are present, celiotomy should be immediately done and the injury repaired. Several cases are reported, notably those of Pullen and Kelly, where wood and sponge tents were found to have perforated the uterine wall and produced septicemia. Mann and Noble have reported cases where successful resection was done for detachment of intestine from its mesentery by the perforating curette. The accident in Krusen's case occurred during the curettement of a softened and relaxed uterus, the indication being hemorrhage, and the probable cause, incomplete abortion. The perforation was due to prolonged efforts to clear the upper part of the fundus with the sharp curette, and was not recognized by the usual slipping of the curette, but by the appearance of a portion of omentum at the external os, which was brought down after some effort by the curette, the operator being under the impression that it was an imperfectly detached portion of membrane. The omentum was pushed back with difficulty through the internal os, the cavity packed, and the writer summoned at once. Celiotomy within two hours of the injury showed an opening in the fundus of the uterus large enough to admit the index finger, showed omentum projecting through the opening above, and gauze packing from below. Suture of the uterus resulted in the recovery of the patient.

The writer seems fully warranted in his belief that the case is one of many that show how easily accidents may occur even in the hands of careful men; and emphasizes the need for care, cleanliness, and special training in intra-uterine manipulation.

#### THE TREATMENT OF VAGINISMUS BY THE COLPEURYNTER.

Huppert<sup>4</sup> calls attention to the difficulties which attend the treatment of vaginismus by the introduction of specula and plugs. These difficulties are easily explained by the increased sensitiveness, abnormal narrowness or inflammatory condition of the introitus vaginæ, which naturally interfere, as is well known, with the introduction of the ordinary glass or hard rubber specula. These, especially during their introduction, excite the very pains and cramp-like contractions of the vagina which are the reason for treatment.

By the employment of the soft rubber colpeurynter the author is able to introduce the collapsed instrument without pain. Cocainization of the introitus is a valuable aid. After dilatation of the bag by the introduction of fluid through a syringe until the patient begins to complain of slight discomfort, the procedure is stopped until the pain passes off, then the fluid is drained off and the colpeurynter refilled once or twice more, and at the last filling allowed to remain in place for half an hour or so. Then the fluid is allowed to drain off, and the instrument may be removed

without the slightest irritation. In order to gauge the amount of increase at each sitting, the writer employed a graduated syringe. After two or three weekly sittings the writer found that he could introduce without difficulty a speculum 3 cm. in diameter. The colpeurynter was then introduced with slight, or no, cocainization, a few times, and followed by the speculum, and the patient then discharged. Coitus, which had been absolutely prohibited during treatment, was now allowed. As most of his cases concerned young married women, the writer had the satisfaction of noting that conception took place soon after the cessation of treatment in several cases.

The hypersensitiveness of the vulva and introitus was combated with Goulard's solution, or a wash of alum and Plumbic acetate, or painting with 3 to 5% solution of nitrate of silver. The strongest cocain solution employed was 10%. The advantages of the treatment by the colpeurynter over the employment of hard specula are evident, since it is necessary to avoid the slightest irritation of the vulva and vagina, which will at once excite the dreaded spasm of the vagina and destroy the patient's confidence in the method of treatment. The very gradual and universal dilatation by the colpeurynter contrasts favorably with the sudden pushing open of the vagina by the end of a cylinder. The writer notes that his method was successful in the treatment of vaginismus complicated by inflammatory conditions, and that finally he was able to avoid in all his cases operative procedures, such as excision of the hymen or division of the constrictor vaginæ muscle. He also was successful in avoiding recurrence.

#### A NEW METHOD OF TREATMENT FOR CHRONIC PELVIC EXUDATE.

Polano<sup>5</sup> of Greifswald has been led, by observing the favorable effect of hot-air treatment in chronic diseases of the joints, to apply the same to the pelvis with the view of favoring the absorption of exudates. Cases of chronic pelvic disease are alone suitable for the treatment, and resorption is favored by the free supply of blood and lymphatic vessels which the affected parts enjoy. Several cases in which exudates were absorbed after from 14 to 20 sittings are reported by the writer. He believes the hot-air treatment a great aid in the absorption of the inflammatory material remaining after evacuation of an abscess by an incision in the abdominal wall. The treatment is to be carried out while the wound is open and granulating. The writer found it a distinct help in alleviating the symptoms and softening the exudate in a case of actinomycosis of the abdominal wall after incision and curetting.

In addition to improvement in the physical conditions, the subjective symptoms, notably pain, was almost always markedly relieved. Patients who had to be lifted into the hot-air apparatus were able to get up without assistance at the end of treatment, and to perform complicated movements, such as bending of the back and the lift-

<sup>4</sup> Centrbl. f. Gynäk., 1901, No. 32.

<sup>5</sup> Centrbl. f. Gynäk., 1901, No. 30.

ing of objects, without pain. No bad after-effects were noted in any of the patients, most of whom were weakened by long-continued disease.

The apparatus employed is similar to that ordinarily employed for joints, but is provided with padded and elevated supports for the back, pelvis and hips. The top of the apparatus turns back on a hinge, the patient lies down on the supports, with the shoulders projecting from one end of the box and the thighs from the other, and the top is closed into place. Ordinary devices are employed to prevent burning. The heat is supplied by a Bunsen's burner, which is placed in a chamber connecting with the main hot-air chamber. The apparatus is made of wood covered with sacking, and painted without and within, with soluble glass to lessen the danger of combustion. A thermometer registering as high as 150° C. is provided.

The patients will bear at first a heat of 120° C. for 20 minutes, and after a week or so will endure for three-quarters of an hour a heat of 135° to 150°. The effect on the skin is remarkable; the patients drip with sweat, even the face and upper extremities. The skin of parts included in the apparatus is deeply injected, sometimes bright red. The introduction of the speculum shows a marked increase of the cervical secretion. The only sensation of which the patients complain is a slight prickling. Cooling is allowed to take place gradually, and the patients are then dried off and lie in bed for an hour. The treatment takes considerable time, about an hour to each patient, but after the surgeon has started the apparatus, the care of it may be safely left to a nurse.

Further experience will be necessary to establish the value and limitations of the method.

#### MEDIAN SECTION OF THE UTERUS: A PLEA FOR THE MORE FREQUENT EMPLOYMENT AS AN AID TO OPERATIVE PROCEDURES.

Küstner<sup>6</sup> of Breslau calls attention to the value of median section of the uterus, a procedure already of frequent application in operations by the vaginal route, as applied to the removal of myomata by abdominal incision.

In dealing, for instance, with a large spherical interstitial myoma, which extends well above the navel, it is unnecessary to carry the abdominal incision clear to the upper limit of the tumor. The incision may terminate below the navel, and be carried, after opening the abdominal wall, directly into the tumor, so that it divides the capsule and penetrates several centimetres into the myoma itself. Then vulsella are applied, first to one side of the incision and then the other, and thus generally one-half and then the other of the myomatous uterus may be brought outside of the abdomen. This procedure enables the operator to partially or completely enucleate the myoma either before or after the uterus is brought outside the abdomen, according to convenience, or he may proceed to complete section of the uterus according to Krönig's suggestion, as a preliminary to total extirpation.

<sup>6</sup> Centrbl. f. Gynäk., Nov. 2, 1901.

The writer also advocates median section of the uterus as an aid in vaginal fixation. Although himself an advocate of laparotomy and the separation of adhesions under the guidance of the eye, as a rule, in retroflexion with adhesions, he has found vaginal section an advantageous procedure in certain cases where the adnexa, although adherent, were not enlarged; such conditions, for instance, as have to be met in mobilization of the uterus after a septic puerperium, or in the presence of slight adnexal adhesions.

In these cases, if after the opening of the vesico-uterine fossa it is found that the uterus is not readily drawn forward, a longitudinal incision into, but not through, the anterior uterine wall will be found of advantage. A vulsellum applied to either lip of the incision will be found a very efficient aid in mobilizing the uterus; the left index finger may now be introduced above the vulsella, and the adhesions separated by blunt dissection. The incision may then be carried higher over the fundus, the forceps reapplied, and the finger carried still further over. The uterus may often be brought so far into the vaginal wound that the adhesions may be divided with scissors or cautery. By means of the incision into the anterior wall the necessary mobility may be gained for bringing the adnexa into the vaginal wound, and making them accessible for the separation of adhesions. The incision in the uterine wall may be closed, if deep, by catgut sutures, or if not of special depth, by the sutures which fix the organ to the vaginal wall.

Naturally the experience of the operator must guide him in deciding how far it is safe to go in the separation of adhesions, especially of the adnexa, and one must not be led by the facility attained by this incision to divide adhesions which might lead to perforation of the intestine or hemorrhage too great to be safely controlled through a vaginal incision.

(Although the separation of posterior uterine adhesions through an anterior vaginal incision is a procedure which does not recommend itself from a surgical point of view as advisable except possibly in most exceptional instances, the above account is interesting as illustrating the advantage of median section of the uterus in facilitating its delivery through a vaginal incision.)

#### PRIMARY SARCOMA OF THE PELVIC CONNECTIVE TISSUE.

S. Reichenfeld<sup>7</sup> (Budapest) has reported in literature up to the present time 9 cases of sarcoma of the pelvic connective tissue. In the woman's clinic at the University of Budapest the following case was observed: A iv para, 44 years of age, had complained for 2 years of pelvic pain, constipation and enlargement. She presented the following condition: Between the rectum and the uterus and bulging forward the posterior vaginal wall was a hard tumor the size of a fetal head at term, filling the true pelvis, elevating the cervix uteri and apparently connected with it. An at-

<sup>7</sup> Oruosi hetilap, 1900, No. 23; Centrbl. f. Gynäk., 1901, No. 37.

tempt was made to enucleate the tumor through a sagittal incision in the posterior vaginal wall. This resulted in the detachment of a large amount of hard, partly degenerated tumor tissue. The capsule could not be removed, and the operation was completed by curetting, tamponade, and, later, drainage of the cavity. Microscopic examination showed an alveolar sarcoma, no myomatous tissue being found. The tumor took its origin from the retrocervical connective tissue, and so resembled a myoma of the cervix. Recurrence took place in 6 weeks, and exploratory incision gave the same microscopic picture.

Sänger<sup>8</sup> reported a similar case.

### Reports of Societies.

#### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

REGULAR meeting, Nov. 4, 1901, Dr. E. H. BRADFORD in the chair.

DR. JAMES C. WHITE read a paper entitled  
ERRORS IN THE DIAGNOSIS OF SYPHILIS.<sup>1</sup>

DR. ABNER POST: The postal card notice of this meeting asks for confessions. Before I say another word I will say that after talking to this society for an hour on extragenital lesions last spring, I have had the misfortune to fail to recognize a primary lesion of syphilis on the finger of one of my brother practitioners this fall. He helped to make the diagnosis difficult, for he would not let it alone. I do not know how many incisions were made in the primary sore by him and his brother physicians, and after I had covered it with collodion to shield it from further interference he tore the dressing off and made another incision. However, the diagnosis was established at length, but I can but think I ought to have made it before. I like to say in connection with syphilis that the man who would be a perfect syphilographer needs to know everything to be known in medicine, and any man who desires to have great knowledge in the diseases of any portion of the body, however small it may be, needs to know all that there is to be known about syphilis in that particular region. Syphilis is so multiform in the character of its appearances, it complicates so many other diseases, that I do not see how a man can possibly go through life without making some mistakes in connection with its diagnosis.

I want to differ mildly with Dr. White in one or two minor points. He has alluded to the fact that syphilitics are liars. Of course they are liars. Under certain circumstances many syphilitics will consider it their duty to lie. Perhaps it is; but to say that syphilitics always lie is, it

seems to me, misleading. Patients lie, of course, under certain circumstances. For instance, let me tell of a woman who was my patient for a long time with syphilis. She was apparently cured. One evening she came into my office excited and in tears, and detailed to me some symptoms which seemed very ordinary and not syphilitic, and asked if they showed a return of her syphilis. She said that while at her mother's house she had called in the family physician, who proceeded to ask if she had had such a rash, etc., going through the category of the symptoms of syphilis, which were perfectly familiar to her. She said: "I do not know why he asked such questions. I told him I did not have a single one of those symptoms." The doctor asked these questions in the presence of the mother, and she naturally lied to him, not because she wanted to lie, but because the doctor had asked the questions in a place and manner where he could not expect her to do otherwise than defend herself.

It seems to me that one reason for difficulty in making the diagnosis of syphilis is that physicians expect to find all the characteristic symptoms of early syphilis in each and every individual case. If they fail to find some falling of hair, some iritis, that case is to them not syphilis. The fact that each case of syphilis shows only a certain number of a very large number of possible symptoms does not occur to them, and that fact needs to be emphasized a good many times.

One difficulty in recognizing the syphilitic dermatoses lies, it seems to me, in the fact that the textbooks on the subject are complicated, that different authors use different terms. We really lack a simple nomenclature on which all teachers of syphilis are agreed, so that the multiplicity of names is in itself confusing.

In regard to primary lesions and the differential diagnosis of other things, it is a surprise to a great many men to find it is possible to have any other lesion than a venereal lesion upon the genitals, and it is, I am sure, useful to repeat the fact, which is a self-evident fact, that lesions which occur on other parts of the body may occur upon the genitals.

Some of the mistakes in regard to primary lesions are almost comical. Within a very little while I have seen a woman whom I had every reason to believe had a primary lesion upon the tonsil. She lived some distance from the city. She had had a swelling at the angle of the jaw for some time, which I believe to have been a bubo of a chancre. The sore upon the tonsil did not attract attention until after the glands were pretty well enlarged, then she found the ulceration covered with a whitish membrane. She went to her physician, who told her she had diphtheria. She thought it impossible and told him he must be mistaken. He called in two other physicians, who also made the diagnosis of diphtheria. No culture was taken. I am giving the woman's story. The physicians insisted that when three of them agreed that it was diphtheria that it must be diphtheria, and she was sent home. The warning

<sup>8</sup> Archiv. f. Gynäk., Bd. xvi, 1880, and xxi, 1884.

<sup>1</sup> For Dr. J. C. White's paper see Journal, Jan. 16, 1902. This report was received too late to publish with the paper.

placard was put upon the door of the house, and she was supposed to be confined with diphtheria. She was still unable to accept the diagnosis, and in order to escape from the odium of the disagreeable condition she removed to the city of Boston, leaving the placard on the door.

To mistake the syphilitic macular eruption for measles is occasionally an easy mistake to make, but that it should be made when the mouth is covered with mucous patches, when there is a splitting nocturnal headache, when the glands on the neck and other parts of the body are enlarged, seems a little bit unusual or unexpected.

I have recently seen an interesting case which fell into my hands in this way: A young lady, college graduate, had some trouble with one eye, which made it somewhat difficult to hold her position as a teacher. This was seen later: a conjunctivitis which was circumscribed occupied a circumscribed part on the ocular conjunctiva. That continued something like a year, followed by some trouble in her mouth which was called syphilis. She saw an oculist in Boston who, catching sight of her mouth, told her she had syphilis, though the lesions in the conjunctiva would not allow such a diagnosis. The young lady refused to accept the diagnosis of syphilis. The diagnosis was sufficiently difficult, so that I was the fifteenth or sixteenth physician allowed to examine her. She showed in her mouth a series of slight ulcerations, the inside of the lips, gums and tongue all ulcerated, profuse salivation, and I thought she was much more likely to be suffering from mercurial stomatitis than from syphilis. There were absolutely no lesions which could be attributed to syphilis. I said I thought she was suffering from mercurial stomatitis; what she might have behind it I did not know; I saw nothing resembling syphilis; if there was any syphilis it was entirely covered up by the other lesions. I saw her a little while afterwards in company with the oculist, and attempted to demonstrate to him the hydrargyrisms, but at that time I could see there was the distinct trace of a vesicle which had broken on her lips, and looking more closely the inside of the cheeks, which ought to have been swollen and ulcerated from excessive mercury, were comparatively free from disease. She went home and I have since seen her there. She is now covered with an eruption of vesicles from head to foot. Looking at her eye one can see a recent vesicle there; her mouth is ulcerated again from the effects of a series of vesicles that have broken out. The surface of the tongue is desquamating, and these vesicles come and go over the general surface of the body. She has a disease which must be classed somewhere in the pemphigus group, which showed itself first on the conjunctiva and then in the mouth. In that case my denial of syphilis was right, but my diagnosis of mercurial stomatitis I am inclined to think was wrong.

In regard to the administration of the iodides in early stages of syphilis. I want to agree with everything that Dr. White has said on the subject,

until he reached the spot where I understood him to say that iodides should never under any circumstances be used in the early stages of syphilis. The iodides certainly should never be used before the diagnosis is made—never! But there do occur certain symptoms in the early stages of syphilis which are made more comfortable by the addition of a certain amount of iodide. Patients who are troubled in the early stages by very severe nervous symptoms, especially very severe headaches, are relieved a little more quickly by the addition of small doses of iodides at bedtime. There are certain early malignant forms of syphilis which are wholly exceptional, and which are also best treated by the addition and sometimes by the substitution of the iodides. These cases are exceptional, but these exceptional cases call for exceptional treatment. Dr. White's principle I agree with entirely. I only note certain exceptions which, perhaps, should be put in fine print at the bottom of the page.

Dr. White did not, I believe, speak of manifestations of syphilis in the nails. Syphilis attacks the nails both of the fingers and the feet occasionally, not very infrequently. One form of disease it is easy to recognize, but certain other forms of diseases of the nails of syphilitic origin I believe are impossible to discriminate.

Erythema indurata, which Dr. White mentions, is certainly a very puzzling disease until one learns to know it. The ulcerations which take place in that disease are rounded, punched out. They correspond, I think I may say, exactly to the appearance of ulcerated gummata. They occur, however, in younger people than you would expect to find such ulcerating gummata in.

It seems to me that speaking of syphilitic alopecia as occurring in patches is liable to a little misunderstanding. Dr. White distinguishes between the *patches* of alopecia syphilitica and the *areas* of alopecia areata, and if that distinction is held in mind it is not misleading, but the term "patches" is usually understood by students to mean areas of very sensible extent, and to them the small portions of the scalp from which the hair is denuded are a surprise. The patches from which the hair is denuded are in most cases but small ones close together, connected, you may say, by zigzag lines, so that when one sees a syphilitic head that has lost a moderate amount of hair the appearance is rather as though it had been worm-eaten or destroyed by moths rather than occurring in very distinct patches.

I want to close with a single little bit of advice. In trying to make a diagnosis of a syphilitic lesion one should not be ashamed to use all the means in his power to arrive at a conclusion. One may very easily be mistaken on seeing some isolated patch of eruption, when the diagnosis would really be comparatively easy if the patient were thoroughly looked at from head to foot. Above all, in the diagnosis of syphilitic lesions, as much as anywhere in medicine, one must be willing to confess at times that he really does not know.



DR. HARDING: I cannot help feeling that one cause for failure to make the diagnosis of syphilis or to distinguish between syphilitic and some other lesions lies in the fact that sometimes patients who come with an eruption give the history of having some years before had a lesion on the penis followed by an eruption. When you come to inquire you find he had gonorrhea and had been taking something, and the eruption may have been a copaiha eruption or something of that sort. Dr. White has spoken of the practice of burning lesions on the penis. Herpes or lesions of that sort are frequently touched with caustic, and leave an indurated area which may later be mistaken for the remains of a primary lesion.

Iodide of potash is often given as a test for syphilis, and this is not always reliable, because there are many other lesions than syphilis which will resolve under iodide of potash.

In speaking of seborrhea of the scalp Dr. White did not mention what sometimes occurs — seborrhea about the face, particularly the nose, sometimes particularly marked.

Another condition which I did not hear Dr. White mention is lichen planus. The lesions appear frequently upon the penis, and for that reason the disease is apt to be mistaken for syphilis.

DR. SMITH: I think Dr. Post said that any lesion might appear on the penis that might appear on any part of the body. That suggested to me a patient that came to the dispensary a short time ago who said that he had a chancre. He said it had been there four or five months, and had been treated in a hospital outside of Boston, that he had been circumcised, had used antiseptic dressings, and was unable to get his chancre to heal. He had a large thickening in the prepuce, and it suggested itself to me that he probably had a chancre years before, and that his chronic chancre of four or five months duration was a gummatous formation in the prepuce. With a little proper medication the chancre promptly healed.

DR. DEBLOIS: A most obscure case was sent to me by a physician out of town. There was an ulcerated perichondritis of the larynx and a history of having had a growth also from the lower lip. This cicatrix had a hardened raised edge, and I immediately suggested that it was carcinomatous. The patient said: "Oh, yes; epithelioma is what they told me it was in Worcester where it was removed," and I was inclined to believe that the larynx was also carcinomatous. However, it looked very much like tubercle, and I sent a culture to the Board of Health. The reply was returned that no tubercle bacilli were found. So I was thrown off my guard, not only by that, but by a report from Worcester that the growth removed from the lip was not carcinoma. I said, therefore, that it might be syphilis, and put the man on iodide of potassium, and, as frequently happens in lesions of tubercle, he improved very rapidly under the iodide, and then I thought my diagnosis was correct. The man's son was in a medical school and had two examinations of the sputum made, and both showed the bacilli of tu-

bercle, and a second examination by the Board of Health resulted in finding the bacilli, so that I had made a mistake in my opinion regarding syphilis.

I think iodide is very frequently a good diagnostic test, and as regards its administration in the early forms of syphilis I do not know what I should do in endeavoring to arrest the destructive processes in the throat unless I could have the iodide and use plenty of it. As to eruption, the small red spots appearing underneath the palmar surface I never have seen in anything else than syphilis. I have had under my care for the last four years a young man who has now apparently recovered. He was engaged to be married to a very decent young girl. I had warned him all along of the great danger of inoculating her from the mouth, because, as frequently happens when the mouth seems to be selected as the point for lesions, those lesions will continue during the whole course. He had mouth and tongue lesions up to the end. Last April he was conscience-stricken and brought the girl to me, and said no doubt she had it in the mouth. There were a few little spots on the tongue which did not seem to amount to anything, and there was a slight tonsillitis. I said I did not think it was syphilis; at any rate, I would not give her medicine. She came in week before last with a rash all over the body and distinct mucous patches in the mouth, and these little fine spots in the palms of the hands. She had been infected from the mouth.

DR. WHITE: With regard to Dr. Shattuck's inquiry with reference to the pruritus connected with syphilitic lesion, it is a rare exception, but they sometimes do itch very much. The rapidly developing erythematous type over the surface of the skin sometimes produces a good deal of itching, and one might be misled thereby.

With regard to the use of iodide of potassium, I did not mean to intimate that iodide of potassium did not have its province, and that a very important one in the treatment of syphilis, but it is never called for in the early stages, unless in the malignant cases Dr. Post has alluded to. In cases of nerve syphilis and brain syphilis it is our sheet anchor. We could not abolish it from the treatment of syphilis any more than mercury, but it has its place, and it is a late place. Given out of place it is capable of making great mischief in the way of diagnosis.

DR. JEFFRIES: As an instance of a person making a mistake I would say that one of my medical friends, who studied in Vienna when I did, was afterwards visiting physician to the dispensary at that time when there was an epidemic of smallpox. He once asked me to see a case with him of a woman who had smallpox, which an old practitioner who had attended before he was called in, had said lasted quite a time. When I went into the room the woman was sitting up in bed, and when stripped down to the bedclothes showed a most perfect syphilitic imitation of smallpox. That case, curiously enough, was reported to the state as one of smallpox, continuing in the same



condition for six weeks. In the Observation Society, the last time I was called upon to read a paper, I took as my text "Syphilis as an imitator." I formerly was interested in diseases of the skin, and have a large collection of plates from which I took all those of syphilis, and selected from those of other skin diseases the ones the former imitated. These I showed together. The imitation was quite perfect and rather astounding, and I think the younger men felt there was a fair excuse for any mistake they might make. I now think that after what we have heard we may feel absolved for mistakes ever made.

DR. C. A. PORTER: I have had a considerable number of cases in the last few years which illustrated the value of microscopical examination of a portion of excised chancre. If I quote Dr. Councilman correctly, he tells me he can tell almost invariably by examination of a piece of the tissue whether it is or is not a chancre within 3 months of the onset of the lesion, provided it has had no treatment at all. As a result of that I have been incising quite a number of chancres the last 2 or 3 years, and now have 16, all of which were confirmed by the subsequent development of symptoms. What led me to do this was a case sent for circumcision by one of the former physicians of the Massachusetts Hospital. He watched this case 3½ months. The patient contracted a disease from the meatus 3 weeks after connection in Moscow, and was suffering from a very tight phimosis. The physician made the positive statement that at no time did he show any signs of eruption, and he had followed him through the 4 months succeeding the coitus. I did the operation of circumcision, and found a perfectly distinct Hunterian chancre, limited, hard, in every way characteristic. He had small glands in both groins, but those might easily have been explained by the discharge from the phimosis. There was no eruption that I could see at the time he was under ether and no signs in the mouth. Dr. Councilman examined a piece of that so-called chancre, and said there was absolutely no question about the diagnosis. The man at present is absolutely untreated. I had nothing to do with the treatment except to do the circumcision and refer him back to his physician, who said that having seen no secondary symptoms he would not treat him on a microscopical diagnosis.

#### GIFT TO HOSPITAL GOOD SHEPHERD, SYRACUSE.

— At the opening of the new hospital of the Good Shepherd at Syracuse, on Feb. 4, it was announced that Mr. W. B. Cogswell had presented the hospital with \$100,000, and also that he had agreed to pay the interest for an indefinite period on a loan of \$100,000 arranged for the benefit of the institution.

**SMALLPOX AMONG MEDICAL STUDENTS.**—The course of studies at the University and Bellevue Hospital Medical College has been temporarily interrupted by the appearance of a case of smallpox among the students.

#### MEDICAL SOCIETY OF THE STATE OF NEW YORK.

NINETY-SIXTH ANNUAL MEETING HELD IN ALBANY, N. Y., JAN. 28, 29 AND 30, 1902, HENRY L. ELSNER, M.D., OF SYRACUSE, PRESIDENT.

#### FIRST DAY.

#### PRESIDENT'S INAUGURAL ADDRESS.<sup>1</sup>

DR. M. J. LEWIS of New York presented the report of the

#### STATE BOARD OF MEDICAL EXAMINERS.

It showed that 749 candidates had applied for license, and that 20% had been rejected. There had been a grand total of 6,349 candidates, of which number, 1,379, or 21.7%, had been rejected.

#### GOITRE: ITS MEDICAL AND SURGICAL TREATMENT.

DR. THOMAS SCULLY of Rome was the author of the first scientific paper presented. It was based on 47 cases. He said that while death had been reported as following parenchymatous injections of iodine, there was much to be said in favor of this mode of treatment. Of course, such injections should be made only under aseptic precautions, and immediately afterwards the site of the puncture should be sealed with iodoform collodion. His personal preference was for a mixture composed of equal parts of tincture of iodine and a 5% solution of carbolic acid. From 10 to 30 minims of this should be injected into the goitre once a week, a different spot being selected for each injection. The addition of the carbolic acid greatly reduced the pain following the injection. In the cystic form both electricity and drugs were useless, though for the parenchymatous goitres galvano-puncture was beneficial. The chief surgical procedures used in the treatment of cystic goitres are ligature of the thyroid arteries, division or resection of the thyroid isthmus, and excision of the goitre. In a series of 2,000 cases Professor Kocher had had a mortality of only 1%.

#### WHAT SHALL BE DONE WITH THE PROFESSIONAL MIDWIFE?

DR. M. J. LEWIS read a paper on the subject, in which he rehearsed the many and well-known abuses and horrors of the present system whereby ignorant women are allowed to attend cases of confinement. It was not necessary to do away with the midwife altogether, but such legislation should be demanded as would prevent ignorant and unqualified women from acting as midwives.

#### HUMAN ASYMMETRY.

DR. W. S. ELY of Rochester read this paper. He spoke of the asymmetry of the testicles and of the veins of the scrotum; of the inequalities in length and circumference of the lower limbs; of the lack of symmetry in the feet, the lungs, the heart and the kidneys, and of the unequal power of the two eyes and the two ears.

<sup>1</sup> For this Address in full see *Journal* Jan. 30, p. 101.

DR. LUCIEN HOWE of Buffalo extended the subject by pointing out that the left lung was apt to be first involved in disease, that the left lobe of the prostate was more frequently enlarged than its fellow of the opposite side, and that, in general, the left was the weaker side.

#### A CASE OF SARCOMA OF THE TONSIL.

DR. ARTHUR G. ROOT of Albany reported this case, which occurred in a man of 23, and demanded lateral pharyngotomy.

#### THE TREATMENT OF PELVIC SUPPURATION.

DR. CHARLES P. NOBLE of Philadelphia, Pa., presented this paper, which was founded on the author's experience in 200 cases. Prior to 1895 his mortality in these cases was 16.3%, but since then it was only 6.5%. Incision and drainage should be the operation of choice in puerperal cases.

#### THE SIDEROSCOPE.

DR. THOMAS R. POOLEY of New York exhibited this instrument, as improved by Hirschberg. The instrument is intended for the detection of pieces of iron or steel in the eye. It consists of a magnet, with a small mirror attached, suspended in a glass tube from a fibre of silk. The mirror is strongly illuminated and its reflex is received on a graduated scale. The eye to be tested is brought as closely as possible to the glass tube, when, if a fragment of iron or steel is present, the magnet and mirror, and hence the spot of reflected light, will be deflected more or less from the position of rest. Dr. Pooley claimed that he was the first to employ the magnet for this purpose, and that in June, 1880, in a paper read before the Section on Ophthalmology of the American Medical Association, he had described his work in this field.

#### GONORRHEA OF THE PROSTATE.

DR. JOHN VANDERPOEL of New York was the author of this paper. Concerning the frequency of this affection, he said that in 190 dispensary and private cases it was present in 36 or 39.7%. The Thompson two-glass test was not frequently sufficient to detect this disorder. In the great majority of cases the symptoms of posterior urethritis were more or less marked. Rectal exploration and examination of the fluid obtained by massage should be made in order to make the diagnosis. The presence of many leucocytes indicates posterior urethritis and prostatitis. After voiding the urine, the meatus should be cleansed with  $\frac{1}{4}$  to  $\frac{1}{2}$ % solution of protargol, and then with the patient in the horizontal position, the anterior urethra should be filled with a  $\frac{1}{4}$  to  $\frac{3}{4}$ % solution of cocain, and then, after 3 or 4 minutes, the protargol should be injected into the bladder by means of a large urethral syringe rather than by the irrigating apparatus. Usually from 200 to 400 grammes were employed, and then the patient was allowed to void it. The treatment should be instituted if possible within the first day or two. Instrumental massage was

both unnecessary and dangerous; it was far better to use the finger and make the massage light in the acute cases. The author was of the opinion that epididymitis was not more common after such irrigation treatment.

#### FRACTURES OF THE NOSE.

DR. JOHN O. ROE of Rochester presented this paper. He advised early replacement of the fragments by means of a smooth sound in the nose and the finger externally. Having done this, an external splint should be fashioned out of aluminum or copper so as to form a mold of the whole nose. It is applied with an intervening covering of adhesive plaster, and is held in place with a broad strip of plaster across the face. This external support he considered of chief importance, but it was also advisable to insert into the nose a spring covered with rubber, or a packing of gauze or cotton for the first 3 or 4 days.

DR. LEONARD WEBER of New York described 2 cases in which he had succeeded admirably by the use of an internal splint made of 2 large rubber tubes.

#### THE CONSTITUTIONAL STATE VERSUS CATARRHAL DEAFNESS.

DR. SARGENT F. SNOW of Syracuse read this paper. In it he insisted that little could be expected in these cases from local treatment without cold bathing, frictions, attention to the liver—in short, good personal hygiene.

DR. WENDELL C. PHILLIPS of New York said that anyone who attempted to treat catarrhal diseases of the middle ear simply by mechanical methods would fall short of the possibilities of treatment.

DR. A. JACOBI of New York declared that local treatment of the nose and throat was almost everything in the treatment of diseases of the ear. Some of the infiltration could be removed by the prolonged internal administration of the iodides in small doses.

#### THE EDUCATIONAL MANAGEMENT OF THE NEURASTHENIC.

DR. EDWARD B. ANGELL of Rochester in this paper described the effect on the neurasthenic of a well-ordered system of daily education, and pointed out the great value of suggestive therapeutics.

#### A NEW METHOD OF BISECTING THE UTERUS.

DR. C. H. RICHARDSON of Albany described this method as follows: With the patient in the Trendelenburg posture the uterus is separated from the rectum, brought well up and one corner seized with forceps and drawn upon. An incision is then made into the median line of the uterus, into the body and uterine cavity. With the fingers the adhesions of the tubes and ovaries are separated, and the incision is carried along the border of the broad ligament, the vessels being clamped as divided.

## AN EPIDEMIC OF TYPHOID FEVER IN THE BACKWOODS OF MAINE.

DR. E. F. BRUSH of Mount Vernon presented this report, which was of interest because of the complete isolation of the cases and the mode of mouth contamination of drinking water by which several members of the first family were infected.

## A CASE OF STRANGULATED HERNIA OF THE LEFT OVARY AND TUBE.

DR. A. TIERISTOW of Brooklyn reported this case, and gave a résumé of the literature, embracing about 100 cases. He said that there were often other congenital defects. The inguinal variety was the most common, but all cases of hernia of the ovary demanded operation. The operation was practically without mortality.

## TOXIC DOSAGE IN THE TREATMENT OF SOME NERVOUS DISEASES.

DR. WILLIAM C. KRAUSS of Buffalo read a paper with this title. He said that failure in the treatment of nervous disorders often resulted from the use of small and inefficient doses. Thus, the dosage of bichloride of mercury was said to be  $\frac{1}{16}$  to  $\frac{1}{8}$  gr., but to be effective in brain syphilis it was necessary to give the drug hypodermically in doses of 1 or 2 gr. a day. Again, the usual dosage of Fowler's solution was between 1 and 10 minims, yet he had obtained some surprisingly good results in chorea by increasing the dose to 30 or even 60 minims 3 times a day. In neuralgic and neuritic disorders nitroglycerin should be boldly pushed up to the point necessary to cause a cessation of the pain. This drug had proved in his hands especially satisfactory. If the large doses caused a throbbing headache, it could be easily relieved by the use of the bromides.

DR. HENRY R. HOPKINS of Buffalo said that during the past year the mortality in severe cases of delirium tremens had been reduced from about 80 to less than 2% by first the abstraction of 1 or 2 pints of blood and then the infusion of double this quantity of normal salt solution.

## THE PATHOLOGY OF THE TISSUE CHANGES CAUSED BY THE RÖNTGEN RAYS.

DR. CARL BECK of New York said that under the prolonged influence of the Röntgen rays the hairs of the skin become altered in structure, and the small blood vessels of the integument become narrowed. The nutrition of the superficial strata of neoplasms was reduced greatly, and might even result in necrosis. This easily explained the curative influence of these rays on lupus, carcinoma and sarcoma of the integument. The part to be treated should not be more than 3 or 4 inches distant from the tube.

## THE POSITION OF THE EYE AT REST.

DR. LUCIEN HOWE of Buffalo exhibited a fixation apparatus that he had devised, and described his method of making the observations.

DR. FRANCIS VALK of New York objected on the ground that this, or any other, matter that eliminated the fusion power of the eye was not worthy of confidence.

DR. HOWE replied that in order to find the position of the eye the light should be allowed to fall on the macula of one eye, and then by inserting a prism the image of the other eye would be thrown off the macula. In this way there was no tendency to fusion, and the eye swings into the position of greatest comfort.

## Recent Literature.

*A Reference Handbook of the Medical Sciences.*

Embracing the entire range of scientific and practical medicine and allied science. Edited by ALBERT H. BUCK, M.D., New York City. Vols. II and III. New York: William Wood & Co. 1901.

The second and third volumes of this excellent handbook maintain the high standard set by the first volume. A goodly proportion of the second volume is taken up with articles on the brain, of which those by Wilder, Barker and Keen are especially noteworthy. There is a certain inevitable confusion of nomenclature, owing to Wilder's strict adherence to the new, but not generally accepted, terminology, as applied to the nervous system. To those familiar with Barker's recent publications, much of what he writes will be a repetition which, under the circumstances, is natural. Keen writes on the surgery of the nervous system. The third volume brings the articles partly through the letter E. We have nothing to add to what we said in our review of the first volume, beyond the fact that we have in these succeeding ones a renewed evidence of the assiduity of the editor and his contributors, and of the painstaking work of the publishers in illustrating and printing.

*Dose-Book and Manual of Prescription Writing.* With a List of Official Drugs and Preparations, and Many of the Newer Remedies with Their Doses. By E. Q. THORNTON, M.D., Ph.G., Demonstrator of Therapeutics, Jefferson Medical College of Philadelphia. Second edition, revised and enlarged. Philadelphia and London: W. B. Saunders & Co. 1901.

This small manual of 362 pages has been revised to meet the increasing knowledge in its province. It offers a great mass of information of the most practical sort to the student of medicine for whom it is primarily intended. In view of the fact, however, that the student period does not end with the attainment of a degree, the usefulness of the book may be extended indefinitely into professional life. The book is most attractively bound in flexible covers and printed in a clear type on good unglazed paper. The illustrations are exceptionally well executed.

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THE ANNUAL REPORT OF HARVARD  
UNIVERSITY, 1900-1901.

FROM President Eliot's own report and summary of the departmental reports one may, as usual, pick out, according to one's own interests, some interesting statements of fact and of opinion. Among the most so to the medical reader are some paragraphs on the last page of his report, deduced from that of the treasurer, which show that, although the total endowment of the university continues to increase, the Medical School now has a larger endowment than any other professional department of the university, and that without including recently promised gifts. This fact is the more striking, because 30 years ago it had the smallest endowment among the professional departments. In 1869-1870, the invested funds applicable in the Medical School amounted to \$45,136.54. On the 31st of July, 1901, the funds applicable in the Medical School amounted to \$1,098,489.74. The benefactors of the university come from a wider territory than they used to, and represent a much greater variety of racial stock, religious opinion, and professional, commercial or industrial connection.

But, "lest we forget," this statement is immediately preceded by another even more pregnant, to the effect that: Many urgent needs weigh upon the minds of the faculties and the governing boards, and impair in a very significant measure the usefulness of the university. The income of \$10,000,000 could be applied in a week to university objects long known and thoroughly studied; and even then the President and Fellows could not think of relaxing for a moment the cautious and frugal methods in which they have heretofore used the money entrusted to them.

Notwithstanding this apparently flourishing financial condition of the Medical School, it is today, on account of its necessarily numerous corps

of instructors and the expensive nature of its laboratory work and training, one of the poorest departments of the university—much more so, for instance, than the Law School, with its comparatively meagre endowment.

In the Medical School the experimental rearrangement of the studies of the first and second years, with its condensation of such basic subjects as anatomy, physiology, histology, chemistry and pathology, has had its second year of trial and is reported on favorably by all the professors concerned and enthusiastically by some of them, although the professor of anatomy is still inclined to think that some modification in his department may prove to be indicated. The merits of the system now await the verdict of the clinical teachers in the last two years before graduation.

Almost all the instructors in charge of the subjects of the first two years complain that their work is seriously hampered for want of space. However, the diminished number of students this year, due to the increased standard of admission, must have temporarily mitigated this difficulty.

Elsewhere President Eliot tells us, it is clear that men of means, who reflect on the uses and results of educational endowments, are more and more inclining to endow research, and that it is also to be noticed that in endowing professorships recent givers have more than once specified that they desired the professors on their endowments to have leisure enough to contribute to the advancement of learning in their several departments.

Some interesting tables are given in the report bearing upon the affirmation, occasionally heard, that success or failure in athletic sports has an immediate influence on the resort to colleges, victory increasing the resort within a year or two, and defeat diminishing it. From a tabulated statement of the contests in track athletics, baseball, rowing, football, and debate, for the calendar years from 1891 to 1900 inclusive, between Harvard and Yale, compared with the preliminary and final candidates for admission during the same years, the conclusion is drawn that there is no relation between athletic victory or defeat for Harvard and the increase or decrease of either preliminary or final candidates for admission in the following year. The same inference is drawn from a similar table concerning Yale and Princeton though in a less positive manner.

President Eliot suggests that: "If the American colleges and universities could satisfy themselves that success in athletics is not indispensable to college growth, or, better still, be persuaded that too much attention to athletic sports, or a bad tone in regard to them, hinders college

growth, there would probably result a great improvement in the spirit in which intercollegiate contests are conducted: they would come to be regarded as the by-play they really are, and would be carried on in a sportsmanlike way as interesting and profitable amusements.

It appears that tennis is the sport which still affords to the largest number of students the means of out-of-door exercise; 790 students were reported as playing tennis. The next most popular sport is rowing, 640 students having taken part in that sport. Football comes next with 242 players; and baseball fourth with 220. Track athletics engaged the attention of 146; and no other sport attracted so many as 100 persons.

Sickness reports for the departments in Cambridge were presented by the medical visitor. The principal disorders are colds, indigestion, diseases of the eyes, the grip, surgical injuries, tonsillitis, diarrhea, headache and diseases grouped as miscellaneous. The number of cases of appendicitis, 33, was more than double the number of cases of typhoid fever, 15. The months in which most sickness prevailed were November, January and March. The smallest percentage of reported sickness occurred in the Law School; the next smallest in the Graduate School; and the next in the Divinity School. The college had the largest percentage of sickness, the younger students being apparently decidedly more liable to sickness than the older. President Eliot thinks the probability is that the older men do not so easily yield to or report slight disorders. And the facts recall to him a remark which President Kirkland is said to have made to a malingering student,—“that sicknesses prevail within the precincts of the college in a greater proportion to the deaths than in any other place.”

#### ORGANIZED METHOD IN THE DESTRUCTION OF THE MOSQUITO.

A FRIEND of the writer, an old gentleman of eighty years, a genuine philanthropist, living in a suburban town, has spent very much of his time during the past ten years in killing English sparrows, brown-tail moths, and other pests. The town makes a small annual appropriation for the work, but the time and labor which he devotes to this end far exceed in value the small sum which the town devotes to the purpose at its annual meeting. The general opinion throughout the town is in support of this measure of public protection. This class of work, however, like a well organized fire department, relates mainly to the preservation and protection of property, but not so much to the maintenance of the life and health of the community. The latter, the protection of life

and health, constitutes the chief duty of a human body, of health, and is of much older date. Within the past five years the mosquito and remosquitoes has assumed a distinct sanitary character, as is illustrated by recent work of the Board of Health of Brookline, by the health officer of New York City, in his work upon Staten Island, and by very many foreign sanitary authorities. Dr. Ross of the British Army has performed a useful service in preparing a handbook of the methods to be employed by local authorities for dealing with this pest.<sup>1</sup>

The discovery of the inoculation of the germs of malarial fever, yellow fever and elephantiasis by the bites of mosquitoes has revolutionized tropical hygiene, and is destined to play an important part in its effect upon sanitary work in all places where these insects abound. Window screens and gauze canopies have one great defect: they protect only those who can afford them, and therefore constitute only a partial method of protection. The question therefore arises, would it not be better to get rid of the mosquitoes altogether than to take so much pains to protect ourselves against them? The object of the treatise of Major Ross is to show how a crusade against the mosquito may best be carried on. The information given is based upon several years' experience in different parts of the world, combined with a careful study of these insects.

The following summary of objects and methods illustrates the character of the work undertaken by these brigades:

*Objects.*—(1) We propose only to deal with them in the town in which we live and in its suburbs.

(2) We aim only at reducing the number of the insects as much as possible.

(3) We aim at dealing with as many as possible.

(4) We content ourselves with preventing the insects from breeding in the town itself, but cannot exclude those which may possibly be blown into town from miles away.

*Methods.*—(1) We start work at once, with whatever means we can scrape together.

(2) We operate from a centre outwards.

(3) We clear houses, backyards and gardens of all rubbish; empty tubs and cisterns containing larvæ or destroy the larvæ in them by means of oil.

(4) We show people how to do these things for themselves, and how to protect tubs and cisterns by means of wire gauze.

(5) When we have cleared as many houses as we determine to deal with, we clear them again and again.

<sup>1</sup> Donald Ross, F.R.C.S., D.P.H., etc.: *Mosquito Brigades, and How to Organize Them*. New York: Longmans, Green & Co. 1902.

fill up or drain away all the pools, wells and puddles we can—especially those which contain most larvæ.

(7) Such pools as cannot be filled up or drained are deepened and cleared of weeds, if they contain larvæ.

(8) Streams and water courses which possess larvæ are "trained."

(9) When we can do nothing else we destroy the larvæ with oil periodically, or by brushing them out with brooms, or by other means.

(10) We endeavor to interest our neighbors in the work, and to educate the town into maintaining a special gang of men for the purpose of keeping streets and gardens absolutely free from stagnant, mosquito-bearing water.

In fine, our motto should be: "No stagnant water."

The style of the book is terse, vigorous and intelligible, though at times egotistical, as where, in the appendix, the author charges several well-known Italian authorities with composing the "most impudent scientific piracies on record,"—since, as he states elsewhere, "the first determination of the kind of mosquito which carries human malaria, and of other facts of leading importance in this connection, were obtained solely and simply by my researches of 1895-1899." This book should be in the hands of every health official who desires to act intelligently and successfully in carrying out measures for the improvement of malarious regions.

#### ADMISSION TO STATE SANATORIUM FOR TUBERCULOSIS. •

Owing to carelessness or a failure to understand the conditions under which patients should apply to the Massachusetts State Sanatorium at Rutland, a considerable degree of annoyance has been caused the authorities of the institution. So many wholly unsuitable cases have been recommended for admission that the trustees have seen fit to issue a circular stating, in general, the rules which govern the choice of patients.

In the first place, it is urged that only persons who are in an early stage of pulmonary tuberculosis will be admitted, a fact which has been generally known, but which has, in many instances, not been regarded by physicians seeking admission for their patients. "In no sense," the circular goes on to say, "is the sanatorium to be considered a 'consumptives' home,' in the ordinary acceptance of the word. It is intended only to be an institution where the patients with slight disease can be sent with a hope of cure, or of such amelioration of symptoms that they may become wage earners again. It is, moreover, an educational institution, where the patients are taught

the simple but important laws of hygienic living, and as such is a factor in the foundation of preventive medicine." It is an injustice and hardship to patients as well as an annoyance to the hospital authorities that unsuitable far-advanced cases should come, at times long distances, often at the advice of their physicians, only to be rejected and returned to their homes as ineligible.

Cases suitable for treatment are: (1) "Those in which there may be signs of incipient disease only, such as slight changes in percussion note or respiratory murmur, with or without râles in one or both apices, the general condition being good, that is, where there is little or no fever and an absence of symptoms showing laryngeal and marked digestive disturbance." (2) Less favorable, but still suitable: "Those showing only slight changes of temperature; some impairment of general strength, with one or both apices showing dulness, with râles, sometimes even with cavity formation, if a dry condition seems to prevail; absence of all symptoms showing laryngeal and marked digestive disturbance." On the other hand, the distinctly unfavorable cases which are not received are: "Those with marked symptoms of digestive and laryngeal disturbance, accompanied with fluctuations of temperature, hectic flushes, night sweats, great loss of flesh, occasional diarrhea and general malaise, even when accompanied by comparatively few abnormal signs in the lungs. These form the chief number of the rejected cases, having been sent as incipient because of the lack of abnormal signs in the lungs alone, regardless of other more important factors. It is almost needless to say that patients with the above symptoms, combined with evidence of consolidation and cavity formation in the lungs, cannot be admitted under any conditions."

Physicians who propose sending patients to the sanatorium are also urged to send with the admission application a record of morning and evening pulse, the temperature, and as accurate a statement as possible of the physical signs and general symptoms. If the profession at large could bear in mind these facts there would be much less useless demand made upon the time of the examining physicians, and also many fewer disappointments to those seeking relief.

#### MEDICAL NOTES.

BANQUET IN HONOR OF DR. GREGORY.—The medical profession of St. Louis, under the auspices of the St. Louis Medical Society, will give a testimonial banquet to Dr. E. H. Gregory, who for 50 years has been an active teacher of medicine. The banquet will be held at the Planters House the early part of April. A large number

of guests will be invited, including all the ex-presidents of the American Medical Association, out of compliment to Dr. Gregory, who was president of the association in 1887.

**WIDENER MEMORIAL TRAINING SCHOOL.**—Plans have been completed for the buildings for the Widener Memorial Training School for Crippled Children in Philadelphia. The improvements and endowment will represent an outlay of about \$2,000,000 by Peter A. B. Widener in memory of his wife. At the institution the children will be cared for, receiving the needed medical and surgical attention, and instruction in such industrial lines as will assist them in supporting themselves.

**A NOTABLE OPERATION.**—It is reported that Doyen of Paris has operated upon twins who were united in a manner somewhat similar to the Siamese twins. The operation of separation was successful in spite of considerable loss of blood, but how the patients will prosper as individuals remains to be determined.

**CHRISTIAN SCIENCE IN GERMANY.**—It is reported that Emperor William of Germany has protested strongly against the growing influence of Christian Science in Berlin, and is likely to take definite action against the promulgation of the doctrine.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Feb. 12, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 56, scarlatina 31, measles 129, typhoid fever 8, smallpox 45.

**BOSTON MORTALITY STATISTICS.**—The number of deaths reported to the Board of Health for the week ending Feb. 8 was 199, as against 215 the corresponding week last year, showing a decrease of 16 deaths, and making the death-rate for the week 18.1. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 41 cases, 6 deaths; scarlatina, 31 cases, 2 deaths; typhoid fever, 10 cases, 3 deaths; measles, 165 cases, 1 death; tuberculosis, 13 cases, 30 deaths; smallpox, 54 cases, 7 deaths. The deaths from pneumonia were 19, whooping cough, 2; heart disease, 29; bronchitis, 11; marasmus, 2. There were 6 deaths from violent causes. The number of children who died under 1 year was 37, under 5 years, 58; persons more than 60 years, 45; deaths in public institutions, 58.

**VACCINATION UPHOLD BY HOMEOPATHISTS.**—At a recent meeting of the Boston Homeopathic Medical Society a resolution was passed opposing any change in the law regarding compulsory vaccination.

**VACCINATION VINDICATED.**—We human body, daily paper the following quaint tution, and co- the efficiency of vaccination, which was found recently among some family papers:

#### HE IS SLAIN.

Milton, 25th October, 1809.

The twelve individuals whose names are written on the back of this card were vaccinated by Doct'r Amos Holbrook at the Town inoculation in July last. They were tested by Small Pox inoculation on the 10th Instant, and discharged this day from the Hospital, after offering to the world in the presence of most respectable witnesses who honored Milton with their presence on that occasion, an additional proof of the never-failing power of that mild preventive, the Cow Pock, against Small Pox infection, a blessing great as it is singular in its kind—whereby the hearts of men ought to be elevated in praise to the Almighty Giver.

OLIVER HOUGHTON.

*Chairman of the Committee for Vaccination.*

**VERDICT AGAINST A CHRISTIAN SCIENTIST.**—A warrant has been sworn out in Portsmouth, N. H., charging a Miss White, Christian Scientist, with practising as a physician without being registered. A patient died under her ministrations. The coroner's jury found that "the disease was aggravated by lack of proper attendance and medical treatment; that if proper nourishment and medicines had been administered to her at proper times it is probable that she would have recovered."

**MEDICAL STAFF OF THE RELIEF STATION OF THE BOSTON CITY HOSPITAL.**—The following appointments for the recently completed Relief Station have been announced: Dr. John T. Bottomley, Supervising Surgeon; Dr. Henry Germain, Resident Surgeon; Dr. Richard Collins, Assistant Resident Surgeon.

**PRECAUTIONS AGAINST SMALLPOX IN CHELSEA, MASS.**—The Board of Health of Chelsea has expended upwards of \$2,000 in protecting its residents against smallpox. The result has been that but 3 cases have occurred since the first appearance of the disease, all of which have recovered.

**PNEUMONIA AT GROTON SCHOOL.**—Several cases of pneumonia having developed among the boys at Groton School, the school has been temporarily closed and the boys dismissed to their homes.

#### NEW YORK.

**HARVARD MEN ON THE BOARD.**—The chairman and two more of the trustees of the new board to have charge of the management of Bellevue and allied hospitals in New York are Harvard graduates.

**ALUMNI ASSOCIATION'S ANNUAL DINNER.**—At the dinner of the New York Alumni Association of the University of Michigan, of which Dr. A. M. Phelps is president, held at the Hoffman House on Feb. 6, Dr. Victor C. Vaughn, dean of the



ulty of the university, responded to the honours in Medicine," Dr. A. Jacobi to the toast "The Medical Profession," and Dr. D. B. St. John Roosa to the toast "State Medicine." The latter in his remarks strongly advocated the establishment of a national department of health, the head of which should have a seat in the President's cabinet. He incidentally mentioned that while \$600,000 had been expended in the United States during the last three years upon researches in disease among animals, less than \$30,000 had been spent for the investigation of human disease.

**VACCINATION OF EMPLOYEES OF CITY DEPARTMENTS.**—The president of the Board of Health has sent a circular letter to the heads of all the city departments requesting that they make early appointments, so that their entire forces of subordinates may be vaccinated by the vaccinating corps of physicians. He pleads the great necessity because of the large increase in the number of smallpox cases recently reported, and also because of the very large number of persons with whom most city employees come in contact every day. While earlier in the season the number of smallpox cases in New York was smaller than last year, so that the impression has become prevalent in the community that the disease is less serious than then, the actual figures show that for the past six weeks the number of cases has been considerably larger than during the same period in 1901.

**ANNUAL MEETING OF MT. SINAI HOSPITAL.**—The annual meeting of the Mt. Sinai Hospital, the last to take place in its present buildings, was held on Jan. 26. In the president's report it was stated that during the year the hospital, which is under Jewish management, had received an anonymous gift of \$38,000 from a Gentile and his sister, in recognition of the nonsectarian character of the institution. During the year 3,196 patients were treated in the hospital, the death-rate of which was 9.71%, and 32,976 patients in the dispensary department. The per capita cost of support in the wards was \$1.54 a day. The present hospital property, on Lexington Avenue, 66th and 67th Streets, has been sold for \$425,000. The new buildings, located on Fifth Avenue, at 101st Street, will have double the capacity of the old, and will accommodate 422 patients.

**FOR PROFESSIONAL HARMONY.**—At the recent meeting of the Medical Society of the State of New York, the retiring president, Henry L. Elsner, was made chairman of a committee of five to confer with a committee of equal number representing the New York State Medical Association for the purpose of formulating a plan by which the regular profession of the State of New York might be united. Dr. Elsner has selected as his associates on this committee Dr. Abram Jacobi

of New York, Dr. Albert Vander Veer of Albany, Dr. A. M. Phelps of New York and Dr. George Ryerson Fowler of Brooklyn.

### Miscellany.

#### PREVENTION OF SMALLPOX ON A LARGE SCALE.

An effort in preventive medicine on a scale of considerable magnitude was inaugurated last week by the Chicago Health Department. Its field is an area of some 600,000 square miles of territory in the ten states of which Illinois is the southern centre and the remotest boundaries of which are within a few hours' railway travel from Chicago. Among the 25,000,000 people living in this area the number of cases of smallpox has increased more than 900% since the first of the year, over the number reported during the corresponding period of 1901. That is to say, between Dec. 28, 1900, and Jan. 24, 1901, there were only 1,070 smallpox cases reported in this territory, while during the similar period ended Jan. 24, 1902, there were 10,820 cases reported—an increase of 911%. Authentic information, gathered by wire and mail, from state and local health authorities and from personal investigation by the contagious-disease experts of the department—sent to a number of infected localities most directly menacing Chicago—convinced the health commissioner, Dr. Reynolds, that the disease is still spreading unchecked, that it is not being fought intelligently or adequately, and that its continuance seriously threatens not only the public health but the material interests of this vast area by the certainty of "shotgun quarantines" sooner or later and consequent costly and vexatious interference with travel and traffic. These views were presented at a conference with the representatives of the leading railways centering in Chicago, and their co-operation with the department was urged in a concerted effort to "stamp out" the pestilence. Ready assent was given, the necessary men and means were assured, and it is confidently believed that the situation will be well in hand within a fortnight after operations are begun.

The plan contemplated wholesale vaccination and revaccination in every infected locality; the provision and maintenance of suitable isolation hospitals where necessary; thorough disinfection of smallpox premises and belongings; strict inspection of all persons offering to travel from infected localities, and refusal to carry those who do not comply with the requirements. This is the measure relied on to control the objectors, "conscientious" or otherwise, and is one fully within the power of the railways to enforce. Special attention will be paid to the condition of employees in manufacturing establishments,—particularly those of textile fabrics,—and the railways will set the example by still more rigorously making recent vaccination a condition of farther

employment. Competent vaccinators and supplies of pure, tested vaccine lymph will be furnished gratis in all proper cases. The work along each railway line will be under the direct charge of the medical director or chief surgeon of the company, and a central office will be maintained in the city for the receipt of reports, requisitions, etc., from those engaged in the campaign. Dr. Reynolds has volunteered to take charge of the central office. This action is not taken solely, or even chiefly, in the interest of Chicago. The situation here has never been alarming at any time during the 3 years of the epidemic, and at the close of last week there were but 21 small-pox cases in the Isolation Hospital, 5 having been received and 7 discharged during the week.

### THE SOCIAL EVIL IN NEW YORK.

THE Committee of Fifteen is about to issue in a volume of nearly 200 pages the report on "The Social Evil, with Special Reference to Conditions Existing in the City of New York," which it was commissioned to prepare by the meeting of citizens held at the Chamber of Commerce in November, 1900. The report is divided into two parts, the first of which, relating largely to the history of regulation, was prepared by a sub-committee, assisted by Alvin S. Johnson, instructor in economics at Bryn Mawr College. In the preface to the work the committee as a whole express the belief that not only does this section constitute a valuable scientific contribution to the subject of prostitution and the various experiments which have been made in many countries looking towards its suppression or its regulation, but that in no other publication can there be found so clear and comprehensive a statement of the problems involved. The second part of the volume, which is devoted to the recommendations of the committee, opens with the statement that the careful investigation of conditions existing in countries countenancing regulation has led to the conclusion that this is not an adequate remedy, even for the physical aspects of the evil. "But if not regulation, what then?" the report goes on to say. "The social evil is assuming alarming dimensions. What is needed at this time is a definite policy, a policy that shall not attempt the impossible, . . . but which, nevertheless, shall be practical with respect to the immediate future."

As an outline of such a policy the committee suggests: (1) Determined efforts to prevent overcrowding in the tenement districts; (2) the furnishing by public provision or private munificence of purer and more elevating forms of amusement than the low dance halls and theatres; (3) the improvement of the material conditions of the wage-earning class, and especially of young women who, in numerous instances, it is stated, are impelled to a vicious course of life, not by passion or corrupt inclination, but by the force of actual physical want; (4) the adequate increase of hospital accommodations in the City

Hospital on Blackwell's Island for the human body, from the physical results of prostitution, and coercive reformatory treatment for minors who have entered on careers of vice. Above all, the committee recommends a change in the attitude of the law, which at present regards prostitution as a crime. The proposition is to exclude it from the category of crime, but the committee is careful to explain that this should by no means be understood as a plea in favor of laxer moral judgments. Some of the most grievous offenses are not subjected to legal penalties simply because it is recognized that such penalties cannot be enforced, and a law in the statute book which cannot be enforced is a whip in the hands of the black-mailer. Corruption in the police force can never be exterminated until this prolific source of it is stopped.

To the question "What, then, is to be the status of prostitution in New York?" it is answered: In the first place, it must be rigidly excluded from the homes of the poor. Second, it must not be segregated in separate quarters of the city, because (1) such quarters tend to become nests of crime and plague spots, and (2), segregation does not segregate, just as it has been shown that regulation does not regulate; (3) all public obtrusive manifestations shall be sternly repressed. Not prostitution itself, when withdrawn from the public eye so as to be noticeable only to those who deliberately go in search of it, shall be punishable, but all such manifestations of it as belong under the head of public nuisances. To carry out the desired ends the creation is recommended of a special body of morals police, analogous to the sanitary police already existing, selected on grounds of exceptional judgment and fitness, to whom alone shall be entrusted the duties of surveillance and repression. While the measures suggested for the prevention of the spread and the curtailment of prostitution would for the most part require considerable time and the education of public opinion, there are two which are practicable in the immediate future. The first is the exclusion of the evil from tenements, and this is already being accomplished under the new law and the new tenement-house department. The other, on which prompt legislative action is demanded, is the abolition of the so-called Raines law hotels. In the appendix to the report it is stated: so far as the problem of prostitution is concerned, the essential thing is to put an end to the abnormal tendency to make hotels out of saloons. New York presents the unique feature of providing victual houses of accommodation throughout the city, quite without regard for the actual demand for them. By the Raines law, saloons are compelled to provide ten rooms each, for which there is no decent use, and the temptation of the saloon keeper to put them to indecent use is very generally yielded to. By this process of the law, not merely are many saloons turned into houses of assignation and prostitution, but these iniquitous adjuncts of the saloon are made the secret means of attracting those who would

such houses separate from the saloons. The entrance upon a life of shame is made attractive and easy, and the spread or demoralization thus made possible for the young of either sex is incalculable in extent and in evil effect.

#### AN ARMY CONTRACT (?) SURGEON.

In the District Court of Montgomery County, Kansas, in December, 1900, in the case of Samuel F. Lewis, plaintiff, vs. Edgar Zinc Co., defendant, No. 9,166, the following deposition was taken on the part of the plaintiff.

Witness stated that his name was Dr. J. S. Hamilton, that he lived in Coffeyville at present, and had previously lived in Wichita, that he was a physician and surgeon, and had been practising since 1862. He stated that he had been a surgeon in the U. S. Volunteerservice, and had two discharges, showing that he had served for 25 years lacking 23 days. He was (1) with the Eleventh Kansas Cavalry; (2) with the Sixth at Fort Sill, Fort Dodge and Fort Wingate; (3) with the Ninth at Fort Burt and back to Fort Sill, and then at what is known as Dobie Wall in Texas, Fort Dobie. He testified that he had examined the plaintiff, Mr. Lewis, who came to him for examination and treatment. The following are extracts from the questions put to the witness, and his answers:

Q. I will ask you if you discovered any evidence of any nervous trouble? A. Yes, sir, I found him, what I considered, as a physician and surgeon, on a line where it might consist in very nervous prostration and engenderment of the brain, caused from asphyxia, for the simple reason that I noticed the eye being dilated.

Q. Doctor, what did you say you discovered with reference to his eyes, if anything? A. I found the pupil of the eye dilated—a nervous twittling; found that it followed him clear up; in an examination for it, stripped his coat and found it went to the spine, and traced it as low down as his waist, if I recollect right; so I told him there was no use for me to look any further, the device it would take to bring him up that I didn't have there, and I didn't want to be at the expense of bringing them there; and absolutely refused his case, and didn't go no further with it.

Q. For what reason? A. For the reason that it would take—that I couldn't expect a complete cure, and only a part of restoration, and that my work would probably more or less be a failure; and if I couldn't do the man good, and make him sound or well, didn't want to fool with him, or take the case at all.

The Court: Q. Is this what you told him? A. Yes, sir. It was a case of too much expense attached to it to bring it up, and I didn't think it was possible to make him a sound, healthy man, and refused the case on that ground. I advised him to go to a hospital, and to a good one, where they understood curbing and sweating the mineral poisons out of the system: told him it would probably take a surgical operation at the base of the skull here, the first thing, and that I didn't do no surgical operations only in the field.

Q. Where were you before you came to Cherryvale? A. Why, I am making my home in Wichita.

Q. But where were you? It says on your advertising matter "Old Dr. Hamilton, on his pilgrimage." Where had you pilgrimaged before coming to Cherryvale? (Objected to by plaintiff). A. I will just refer

the gentleman to every town from Wichita, Kan., to San Francisco, Cal., and north to the north line of Nebraska, and south to the south line of Texas, under that old firm there of old Dr. Hamilton.

Q. Then, if I understand you, you are a traveling doctor, and go from one place to another? A. I advertise myself up there as a kind of a tramp and horse doctor.

Q. Now, when you were called to see Mr. Lewis you looked him over—did you feel his pulse? A. Not thoroughly; I didn't thoroughly look the man over; just looked over far enough to convince myself that it was the other man that needed to be called in, in place of me, sir.

Q. Did you feel his pulse? A. Yes, sir, I felt his pulse and tested his heart.

Q. How was his heart? A. I considered his heart then 5 below normal.

Q. Five what? A. Five below normal, 5 beats to the minute below normal.

Q. What is normal? A. 1,760.

Q. 1,760? A. 1,760, double, single pulse pulsations half that, and double.

Q. I don't quite understand that, doctor; you may explain that a little plainer to me. What is normal? A. Five vibrations of the heart inside the human body, each one making a distinct pulsation within itself; taking the 5 within itself to the minute, it makes 1,760 pulsations a minute—5 beats less.

Q. How many? A. The sebra vetrum artery makes a pulsation from the heart—beings you asked me, so you can go ahead—located over the spinal column, and at both ends is an ejector, and one has got a receiver, making a double from that; there is one from the kidneys.

Q. One what? A. Blood station; one artery forms blood station in the heart.

Q. That is from the kidneys? A. It comes from the kidneys and Telcile glands.

Q. How do you spell that? A. Telcile glands. Now you will have to go to a homeopathic to get that.

Q. Telcile? A. Yes, sir.

Q. Is that the name? A. I will spell it, T-e-l-c-i-l-e.

Q. And that is in the kidneys? A. No, sir, I say that is the Telcile glands of the heart, when the blood from the kidneys comes to the heart.

Q. I am trying to get my finger on the Telcile gland. Where is it? A. It is at the sebra vetrum of the heart. I got nothing to say, but I don't like to be bullied in the court room.

Q. The Telcile gland—where is that? A. That is the lapel pocket of the heart—the lapels that turn from the heart; there are 5 of these in the heart, that feeds the body in 5 different ways; feeds the limbs, feeds the extremities, right and left, and feeds the head; there are 5 of them it takes to build the human system. Those are the old fogy principles, they claim, of the blood from the right to the heart and to the left; it makes a turn; it doesn't go into one limb and across over to the other one and back, but goes into the pocket into the heart and back into the limb, and back into the heart, until it makes 5 turns of the body—

The Court: Don't talk quite so fast; you must have a little mercy on the reporter; he has to take this all down.

Q. I will get you to tell the jury, doctor, what are the different parts of the heart called? A. Just let me have it here (the sketch) and I will explain the point, sir, you asked me there a minute ago. The right ductet of the heart—

Q. Just say that again, doctor? A. The left-right ductet of the heart, upper valve.

Q. The left-right ductet of the heart, upper valve? A. Yes, sir.

Q. What else? A. Centre ductet, brain valve.

Q. Brain valve? A. Yes, sir, valve running to the brain. I am not giving it to you in Latin, gentlemen. If you want that I will furnish it to you tomorrow.

Q. Go ahead in Anglo-Saxon? A. Lower textile artery of the heart,—that means for to catch the blood below.

Q. "Lower textile artery?" A. Yes, sir, that means to catch the blood below.

Q. What other part of the heart is there? A. Exterior and interior.

Q. Exterior and interior? A. Yes.

Q. Any other part? A. Well, yes, there is lots of parts, medically speaking. If you want to go into them there is enough in the heart to keep a man here a month; but then I will tell you now that I cannot answer only the general outside lines, and I want to say to you this, and I think that you will yourself, to stand in reason, if you would let me simply make the explanation as near as I could.

Q. Now, just tell us the names of the other parts of the heart, whether medical names or common names? A. Well, there is about, if I recollect right,—there is something in the neighborhood of 62 or 63 names, but I couldn't give them all to you.

Q. These four are all you remember now—these four you have given me, the left-right ductet, and the centre ductet, and the lower textile artery, and the exterior and interior—these are the only names you think of now, are they, in connection with the heart? A. (No answer.)

Q. Now, you said Mr. Lewis' eye was "diluted"? A. Yes, sir.

Q. Was it diluted with anything? A. Well, sir, I considered it diseased when I first seen the man; to be honest with you I thought he had mineral poisoning, because the pupil of the eye was diluted, and I noticed the right one was worse than the left one, if I recollect right; one of them was worse than the other.

Q. How is that "diluted" spelled? D-i-l-u-t-e-d—is that the way it is spelled? A. Well, now; I would not be sure at all, sir.

Q. Now, doctor, I wish you would tell me what are the different parts of the human eye? A. Pupil, cornea, that is, two of them, of the eye.

Q. Yes; what else? A. Well, there are others.

Q. Can you name any others, doctor? A. Outer globular lining and inner.

Q. Now, you spoke of some engenderment. How do you spell that, doctor? E-n-g-e-n-d-e-r-m-e-n-t? A. Yes, you can spell it that way, and they will understand it pretty well that way; that really is not the way to spell it.

Q. How is the real, sure-enough way to spell it? A. It is pretty hard for me to turn around and spell this. I tell you, sir, I want to be honest with you; I go into the field to make a fight of medicine and I treat, and I refer you to anybody there. If to come around and pick up medical books in cases, I am willing to confess to you that I do not do it; and you might call me up—you may call anyone up, after they have read a thing up and run through it, and turn around an hour or two afterwards and ask them over, and they wouldn't be able to promptly answer one-fiftieth of the questions; and I will confess to you that I cannot. If you know of any doctors in Cherryvale, ask them if they ever met with me.

Q. Did you ever run across such a thing in the human system as an "iris"? A. Why, I have heard of such a thing, from a Latin standpoint.

Q. Well, where is that located? A. I don't wish to go any further and state (turning to the court): Judge, I would like to be protected from *this* man!!!

The court: If you know, tell him. A. I just simply pass the case.

Q. You don't know where that is. Well, do you know into what parts the brain is divided, doctor? A. No, I do not, right now.

Q. You cannot give the names of the different parts of the brain, can you? A. I cannot do it here. I can-

not go to work and go into details of the human body, and do it at all.

Q. Can you tell the names of the bones in your arm? A. Why, I have heard of a long bone.

Q. Any other bone? A. There is other bones there, but I don't know them.

Q. You don't know their names? A. No.

Q. Do you know the names of the bones in your legs? A. Yes, I have heard of the long one in the leg.

Q. The name of any other bone you know of besides the long bone? A. I could not go into detail with them to save my neck and answer the questions rightly and honestly, unless I have a chance to do it.

Q. Is there a bone in the body by the name of "clavicle"? A. Is there not two of them, located—

Q. Well, where are they? A. Two central cavities of the human heart, and one in the head, and one in the coupling of the spine.

Q. That is where the clavicles are? A. Yes, there is one in the head.

## Obituary.

PAUL F. MUNDE, M.D.

DR. PAUL F. MUNDE, an eminent gynecologist of New York, died on Feb. 7, of cardiac disease, in the fifty-sixth year of his age. He was born in Dresden, Saxony, and while still a child was brought to this country by his father, Charles Mundé, a man of old family and liberal education, who was a political refugee. He was graduated from the Boston Latin School and from the Harvard Medical School in 1866. He then studied abroad, and in 1871 took his degree as Master in Obstetrics at Vienna. The degree of LL.D. was conferred upon him by Dartmouth College in 1897. During his residence in Europe he entered the medical service of the Bavarian Army, was made a battalion surgeon, and served through the Franco-German War. In 1873 he came to New York, and soon attained distinction as a gynecologist and consultant in obstetrics. Among the positions which he held were the following: Professor of gynecology in the New York Polyclinic and in Dartmouth Medical College, surgeon to the Woman's Hospital, gynecologist to Mount Sinai Hospital, consulting gynecologist to Columbus, St. Elizabeth's, Mothers' and Babies', and Skin and Cancer hospitals, and consulting obstetrician to the City Maternity Hospital. He was also president of the New York Obstetrical Society. Dr. Mundé was very widely known by his writings. From 1874 to 1892 he was editor of the *American Journal of Obstetrics*, and, in addition to his long and highly appreciated labors in this capacity, made many valuable contributions to obstetrical and gynecological literature. Among these was the practical rewriting, under Dr. Thomas' supervision, in order to bring the work abreast of the scientific advances of the day, of the latter's classic treatise on "Diseases of Women."

HENRY RUTGERS BALDWIN, M.D., LL.D.

HENRY RUTGERS BALDWIN, M.D., LL.D., president of the Board of Health of New Brunswick, and one of the most prominent medical men in New Jersey, died at his home in New Brunswick on Feb. 3, from pneumonia and cardiac disease. He was born in New York City Sept. 18, 1829, his father being the Rev. Dr. Eli Baldwin, a distinguished minister of the Reformed Dutch Church, and was graduated from Rutgers College and the New York University Medical School. He was treasurer of the New Jersey State Medical Society from 1867 to 1875, and afterwards served as its vice-president. At the time of his death he was on the medical staff of the Wells Memorial Hospital at New Brunswick and a member of the board of managers of the New Jersey State Hospital for the Insane.

## METEOROLOGICAL RECORD

For the week ending Feb. 1, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	3.00 P.M.	8.00 A.M.	8.00 P.M.		8.00 A.M.	8.00 P.M.
S.....26	30.50	32	39	24	87	82	84	W	S	4	14	O.	O.	T.
M.....27	30.00	38	54	24	100	37	64	S	W	22	24	O.	C.	.10
T.....28	30.54	18	24	13	34	37	36	N	W	19	16	C.	C.	.16
W.....29	30.55	16	19	12	50	52	56	N	W	12	8	F.	O.	
T.....30	30.30	19	25	13	93	51	72	N	W	11	12	N.	C.	T.
F.....31	30.40	20	28	13	59	76	68	N	W	7	12	N.	O.	.16
S.....1	30.23	32	36	28	85	100	92	E	N E	13	10	N.	R.	
☞	30.36		32	18			67							.26

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 1, 1902.

CITIES.	Population* Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Diarrheal diseases.
New York.	3,685,352	1,359	482	22.44	17.80	3.75	.59	2.90
Chicago.	1,852,828	—	—	—	—	—	—	—
Philadelphia.	1,348,624	580	149	22.00	17.35	2.20	3.96	.28
St. Louis.	603,717	—	—	—	—	—	—	—
Baltimore.	525,330	215	57	16.74	21.39	1.86	.93	.93
Cleveland.	411,828	—	—	—	—	—	—	—
Buffalo.	376,742	—	—	—	—	—	—	—
Pittsburg.	341,401	130	40	20.00	32.30	3.84	4.61	2.36
Cincinnati.	332,032	—	—	—	—	—	—	—
Milwaukee.	304,976	—	—	—	—	—	—	—
Washington.	289,537	—	—	—	—	—	—	—
Providence.	185,870	82	28	20.74	18.30	3.66	1.22	1.22
Boston.	588,730	228	54	28.95	14.91	1.75	.88	.88
Worcester.	127,337	33	9	9.09	24.24	—	—	—
Fall River.	111,872	24	12	37.49	12.50	12.50	—	4.16
Lowell.	99,574	30	6	26.66	20.00	13.33	—	—
Cambridge.	96,334	21	9	14.28	33.33	4.76	—	—
Lynn.	71,144	24	5	26.00	8.33	—	—	—
Lawrence.	67,275	22	11	22.72	4.54	—	—	—
Springfield.	66,864	16	4	18.75	18.75	—	18.75	—
Somerville.	65,882	16	5	25.00	12.50	6.25	—	—
New Bedford.	65,574	23	9	17.39	17.39	—	—	—
Holyoke.	48,065	16	8	18.75	37.50	6.25	—	—
Brookline.	43,208	7	2	14.30	—	—	—	—
Haverhill.	40,392	12	2	25.00	16.67	—	—	—
Salem.	36,567	8	2	25.00	12.50	25.00	—	—
Newton.	36,336	8	—	—	25.00	—	—	—
Malden.	35,390	8	1	12.50	—	12.50	—	—
Chelsea.	35,264	7	2	—	—	—	—	—
Fitchburg.	33,948	8	2	12.50	50.00	—	—	—
Taunton.	32,759	4	—	25.00	—	—	—	—
Everett.	27,114	5	2	—	—	—	—	—
North Adams.	26,563	8	3	12.50	25.00	—	—	—
Gloucester.	26,121	6	2	—	—	—	—	—
Quincy.	25,307	6	3	—	16.67	—	—	—
Waltham.	24,612	7	1	28.90	42.90	—	—	—
Pittsfield.	22,311	2	1	—	100.	—	—	—
Brookline.	21,679	—	—	—	—	—	—	—
Chicopee.	20,390	7	3	—	—	—	—	—
Medford.	20,014	5	1	—	60.00	—	—	—
Newburyport.	14,478	—	—	—	14.30	—	—	—
Melrose.	13,384	3	—	—	66.67	—	—	—

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1890 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 2,912; under five years of age, 923; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 637, acute lung diseases 539, consumption 275, scarlet fever 46, erysipelas 9, typhoid fever 43, whooping cough 16, cerebrospinal meningitis 12, smallpox 41, measles 30, diarrheal diseases 9.

From whooping cough, New York 6, Philadelphia 2, Providence 1, Boston 4, Lawrence 2, Revere 1. From cerebrospinal meningitis, New York 4, Pittsburg 1, Worcester 1, Lynn 4, Somerville 1, Brockton 1. From scarlet fever, New York 29, Philadelphia 9, Pittsburg 2, Boston 4, Holyoke 1. From erysipelas, New York 6, Philadelphia 1, Pittsburg 1, Boston 1. From smallpox, New York 15, Philadelphia 13, Providence 1, Boston 12.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-five great towns of England and Wales, with an estimated population of 14,800,427, for the week ending Jan. 18, the death-rate was 17.7. Deaths reported 5,035; acute diseases of the respiratory organs (London) 307, whooping cough 90, diphtheria 86, measles 158, smallpox 59, scarlet fever 57.

The death-rate ranged from 4.8 in Hornsey to 27.9 in St. Helens; London 18.0, West Ham 16.1, Croydon 17.0, Brighton 15.5, Portsmouth 14.7, Southampton 13.1, Bristol 14.6, Birmingham 21.8, Leicester 12.8, Nottingham 17.4, Birkenhead 10.7, Liverpool 21.8, Manchester 20.9, Salford 18.4, Bradford 16.5, Leeds 19.1, Sheffield 15.7, Hull 14.4, Newcastle-on-Tyne 21.9, Cardiff 15.4.

## OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING JAN. 16, 1902.

GLENNAN, A. H., surgeon. Detailed to represent the service at meeting of International Sanitary Conference at Havana, Cuba, Feb. 15. Jan. 11, 1902.

GUTIERAS, G. M., passed assistant surgeon. Detailed to represent the service at meeting of International Sanitary Conference at Havana, Cuba, Feb. 15. Jan. 11, 1902.

DECKER, C. E., assistant surgeon. Granted leave of absence, on account of sickness, for 30 days from Jan. 15. Jan. 16, 1902.

LAVINDER, C. H., assistant surgeon. Bureau letter of Jan. 2, 1902, granting Assistant Surgeon Lavinder leave of absence for 2 days, amended so that said leave shall be for 1 day only. Jan. 11, 1902.

CRAIG, R. C., acting assistant surgeon. To report to Surgeon F. W. Mead for duty. Jan. 15, 1902.

SWEETING, C. B., acting assistant surgeon. Granted leave of absence for 5 days from Jan. 23. Jan. 16, 1902.

## SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will meet in Sprague Hall, Boston Medical Library, 8 The Fenway, Wednesday, Feb. 19, at 8 p.m. Subject: "The Treatment of Hay Fever," Dr. J. P. Clark, Dr. A. Coolidge, Jr., Dr. J. L. Goodale. Dr. R. F. Chase will report a "Case of Continuous Hypersecretion of the Gastric Juice with Hyperchlorhydria (Reichmann's Disease)." Discussion by Dr. Smithwick and Dr. Hewes.

H. F. HEWES, M.D., Secretary.

OFFICERS OF HARVARD MEDICAL SOCIETY OF NEW YORK CITY.—At the annual meeting of the Harvard Medical Society of New York City held at the Metropolitan Club on Saturday evening, Jan. 24, 1902, the following officers were elected: President, William B. Coley, M.D.; Vice-President, Myron P. Denton, M.D.; Treasurer, Joseph A. Kenefick, M.D.

## AWARDING OF PRIZE.

THE NATHAN LEWIS HATFIELD PRIZE FOR ORIGINAL RESEARCH IN MEDICINE.—The College of Physicians of Philadelphia announces that the sum of \$500 will be awarded to the author of the best essay in competition for the above prize.

Subject: "The Relation Between Chronic Suppurative Processes and Forms of Anemia."

Essays must be submitted on or before March 1, 1903. Each essay must be typewritten, designated by a motto or device, and accompanied by a sealed envelope bearing the same motto or device and containing the name and address of the author.

The competition is to be open to members of the medical profession and men of science in the United States.

## Original Articles.

THE SIGNIFICANCE, PATHOLOGICAL AND CLINICAL, OF ABDOMINAL PAIN.<sup>1</sup>

BY MAURICE H. RICHARDSON, M.D., BOSTON.

THE foregoing title suggests a broad field for comment, not only because pain is the earliest symptom of practically all acute abdominal lesions, but because upon early recognition of its significance and upon prompt surgical intervention depends successful treatment. Not only in acute abdominal lesions, but in many chronic ones,—functional as well as organic,—pain is an early, persistent and distressing symptom. Alone, it indicates danger in general; in combination with other signs, it indicates danger in particular, and guides the surgeon's hand to its source. The general teaching used to be that pain should be immediately combated with drugs,—dulled by opium, overcome by anesthetics. This is but to extinguish the light altogether—to destroy the guiding beacon. The teaching today should be to seek at once the cause of pain, and to subdue it by the removal of that cause.

The subject is of great importance to everyone.—the physician, the surgeon, the patient. Excluding certain zymotic diseases, few abdominal lesions are met with in which pain is not at one time or another a prominent feature. Pain dependent upon organic disease often begins long before signs appear upon which to base a diagnosis. It is almost the only prominent feature which always appears at a time early enough for successful intervention. We must, therefore, study its very earliest manifestations—how it begins; where; what its nature; how it ends; what symptoms accompany it or immediately follow it, and what their significance.

Abdominal operations have added enormously to our knowledge of the significance of pain by demonstrating both its immediate and its contributing causes. The earlier the exploration after the onset of pain, the more accurately can we determine its exact prime cause. Repeated explorations at the earliest possible moment will some day enable the observer to recognize with certainty the direct connection between pain and its cause, and to decide upon a remedy which, applied at that early hour, will prove successful.

In the great proportion of acute abdominal lesions, pain is the earliest, the most persistent, the most significant sign. Pain is the great danger signal which cannot be overlooked, unheard or forgotten. It calls aloud in the strongest terms for relief, and if relief is not afforded, it calls again and again more loudly for relief. Our response to the call of the infected peritoneum for cleansing, of the bleeding vessel for ligation, of the obstructed intestine for relief, is, unfortunately, but too often a smothering of it with morphia, while, under the apparent relief which

dulling of the pain gives, the deadly evil goes on unchecked.

Can we by study, observation and reasoning learn to interpret the cry for help which, through pain, the fatal lesion utters? Can we understand that cry which says: "Help the perforated stomach, the gangrenous appendix, the bleeding artery, the ruptured gall bladder, the obstructed intestine?" If we cannot interpret the exact nature of the call, we can, I think, at least know that it is a life-and-death one. Instead of calmly ignoring that call or of smothering it, we can make an immediate response to it, and can at least try to find and to remove the cause.

Space is too limited even to enumerate the different lesions which are preceded, ushered in, or accompanied at some time or other by abdominal pain. I would confine my remarks to some of the most frequent and therefore most important causes of pain; to a brief consideration of the diagnostic value of the pain itself and of its commoner accompanying signs.

In the classification of abdominal lesions in accordance with the rapidity with which they cause death, and therefore with the importance of the earliest possible intervention, we must consider (1) those lesions which unrelieved cause death within a few hours; (2) those fatal in a few days; (3) those which, unrelieved, become fatal in weeks or months, and (4) those in which there is no urgency.

(1) The first group includes the rapid hemorrhages, with or without complications, penetrating wounds with hemorrhage, rupture of solid viscera,—the liver, spleen and kidney with hemorrhage,—rupture of extra-uterine pregnancies with hemorrhage, post-operative hemorrhages, the excessive hemorrhages of gastric and duodenal ulcers, hemorrhage into ovarian cysts with twisted pedicle. Although in some of these conditions pain is not a prominent symptom,—indeed, it may be absent,—in most of them it is an early and important sign. The most important of these is the ruptured extra-uterine pregnancy, in many cases of which death is a matter of only a few hours, or even of a few minutes. The hemorrhage into a large ovarian tumor caused by twist of the pedicle is sometimes excessive and rapidly fatal. Pain in both is a prominent symptom. In perforating wounds of the abdomen pain may be an unimportant feature and hemorrhage an important one. In post-operative hemorrhages pain is frequently absent. In both, the signs of hemorrhage are plain and occur after a perfectly adequate and conspicuous cause.

In the severe hemorrhage of gastric and duodenal ulcers pain may be absent or slight. The nature of the emergency is, however, made plain by the signs of exsanguination, occurring in the course of recognized gastric or duodenal disease, with or without vomiting of blood.

In the first group of cases the prominent symptom may not be pain, though in many of the lesions it is the earliest and most significant feature. The most conspicuous sign is that of internal

<sup>1</sup> Read before the Obstetrical Society of Boston, Nov. 19, 1901.



hemorrhage. In some of the lesions, notably a ruptured extra-uterine fetal sac, or in an ovarian tumor with twisted pedicle, pain is of such a nature and situation as to suggest a grave lesion and to indicate operation long before the signs of hemorrhage become plain. The chief significance in the pain which precedes or accompanies an internal hemorrhage lies in its value as a guide to the probable lesion. The success of early intervention is most brilliantly illustrated in this group of abdominal emergencies. Immediate intervention proves almost invariably successful in the lesions essentially aseptic. Even in lesions unavoidably septic—in the hemorrhage of gastric and of duodenal ulcer, of ruptured solid viscera—the outlook is encouraging.

(2) The group second in importance, judged by the necessity for and the brilliant success of early intervention, includes those cases of fulminating and extensive peritonitis dependent upon rapid extravasations of septic material into the peritoneal cavity. This class comprises a great variety of lesions—perforations of gastric and duodenal ulcers; perforation of intestinal ulcers, typhoidal, tubercular, cancerous; perforations of appendices, especially of those of large lumen freely communicating with the intestines; stabs and gunshot wounds of the intestines; rupture of abscesses of great variety into the abdominal cavity; wounds and ruptures—traumatic and ulcerative—of the gall bladder, urinary bladder and kidney; rupture of a septic and friable spleen; acute intestinal necroses due to volvulus, intussusception, internal strangulation; mesenteric embolism and thrombosis; and to other causes,—acute hemorrhagic pancreatitis and fat necroses; torsion of tumors about their pedicles,—in a word, all lesions causing rapid and extensive general peritoneal infections, and directly or indirectly rapidly fatal.

In every lesion of this group the first symptom is pain of the severest character. The call for intervention, first and loudest, is pain. If the remedy could be at hand at the first burst of pain the success of surgical intervention would doubtless be of the most encouraging order. Even when the operative remedy is delayed a few hours the results are as a rule favorable. When general peritonitis is under full headway the prognosis is most unfavorable. It is in this group of cases that surgical intervention too long delayed has so few successes, and it is in this group especially that we should study the significance and prognosis of the initial pain.

(3) Third in importance are the slow infections of the abdominal cavity—cases of localized peritonitis with localized abscess. This group includes the milder forms of appendicitis; inflammations of the gall bladder; minute perforations of the alimentary canal; slight extravasations or abscesses; inflammations of the tubes, ovaries and uterus, with localized peritonitis; the various obstructions of the intestine without necrosis of the intestinal wall; cicatricial strictures of the intestines; impaction of foreign bodies in the intestine;

pressure of out-lying growths and inflammations. All of these lesions, unrelieved, may cause death in the course of a few days, but all may be followed by spontaneous recovery. In this group the significance of pain is great. There is, however, always time for observation and for deliberate intervention. No harm can be done, however, by mistaking lesions of this group for lesions of the preceding, for even in this group operation loses nothing of its safety by early application.

(4) The last group of abdominal lesions includes those in which there is abundant time for study; abdominal tumors causing gradually increasing pain; chronic intestinal obstructions caused by the gradual contraction of ulcers (cancerous, tubercular, diphtheritic, typhoidal); the impaction of gallstones in cystic duct; the impaction of renal stones; pyelitis; pyelonephritis; hydronephrosis; slowly forming abscesses in various viscera, and the like.

The fatalities, if relief is not immediately at hand, are the greatest in the first group, and diminish rapidly in the succeeding groups. The causes of death in the first group are hemorrhage and shock; in the second, general peritonitis; in the other groups, chronic infections, exhaustion, and sudden conversion, through rupture or other causes, of a localized into a general infection—of a comparatively safe lesion into one of the most rapidly fatal. On the other hand, the mortality in these groups would be in a different order were help immediately at hand. By far the most brilliant results of early operative treatment would be found in cases of hemorrhage. The success in the group of general peritoneal infections would be in direct proportion to the promptness of intervention, though in some cases the infection of the peritoneal cavity is so rapid and overwhelming that even the most prompt relief is ineffectual. Surgical intervention in other groups—time being an unimportant factor—varies in its success with the nature of the lesion, the skill and experience of the operator, the strength and endurance of the patient.

If it were possible to know the day before what was going to happen in that first group of lesions; if the patient and the surgeon were ready at the very moment of rupture and the first appearance of hemorrhage, there would be little if any mortality. The fatal issue in concealed abdominal hemorrhage is caused by the loss of time—unavoidable, it is true—loss of time on the part of the patient in calling the assistance of his family, loss of time on the part of the family in calling the physician, loss of time on the part of the physician in summoning the surgeon, loss of time on the part of the surgeon in preparing for and performing his operation. The loss of time in the aggregate in abdominal hemorrhage is sufficient to account for the mortality. Even when help is at hand, as at the hospital, the lesion may be so rapidly fatal that the patient will be beyond aid before the house surgeon can apply the remedy. So in a less degree in the treatment of the second group—the rapid extravasations



and general peritonitis—cases in which a few hours may see a hopeless general infection fully established.

In the group of general peritoneal infections the first object of treatment is the saving of time—the earliest possible application of the remedy. The only way in which enough time can be saved to apply the remedy sufficiently early is for the practitioner to recognize at once the significance of the pain.

The significance of the pain is determined by its manner of onset, its character, its effect upon the patient's mind, upon his temperature, his pulse, its accompanying local signs in the abdomen.

When hemorrhage is the only lesion, pain is the expression of violence done the peritoneum. The commonest cause is the rupture of an extra-uterine pregnancy—usually tubal. The fluid extravasated in the pelvis is aseptic, yet the pain, situated low down in the pelvis, is usually of the most excruciating character. It is often knife-like and paroxysmal. Such a pain, occurring in women of child-bearing age, should always suggest the possibility of hemorrhage from the rupture of an ectopic gestation. If there is the least sign of hemorrhage, and if there is the least confirmatory sign of pregnancy, the abdomen should immediately be opened. Even if there is no evidence of pregnancy, the chances favor the rupture of an extra-uterine fetal sac, or of a hematosalpinx.

An interesting question in connection with this form of hemorrhage is the cause of pain. When, after simple ovariectomy, the pedicle slips out of the ligature and the patient bleeds to death, there is as a rule no pain. When an extra-uterine sac bursts, there is pain of the most excruciating kind. In both cases there is a simple abdominal hemorrhage without sepsis. Pain makes the difference. It cannot always be that pain is caused in the rupture of an extra-uterine pregnancy by injury to nerve filaments through an infiltrating and dissecting hemorrhage, for in many cases characterized by intense sudden pain nothing is found except a simple bleeding point with a pelvis full of blood. In many cases, however, extensive infiltrations are found in the layers of the broad ligament, subperitoneally, or even in the visceral peritoneum. It seems not unreasonable to say that in some cases at least pain is simply the expression of the peritoneum when blood is suddenly poured into it. In post-operative hemorrhages the peritoneum has already been exposed to the shock of the operation itself, and fails to respond to the additional shock of a secondary hemorrhage. The occasional absence of pain in the gravest emergencies of concealed hemorrhage must be carefully borne in mind, therefore, and the surgeon must be prepared to operate when the signs of a simple painless hemorrhage are present.

In the hemorrhage of an acute hemorrhagic pancreatitis the pain is sudden and acute. It is situated in the epigastrium. This form of hem-

orrhage is in the beginning an aseptic one. The bleeding is usually infiltrating, though free blood mixed with serum is abundant in the abdominal cavity. The pain may be caused by the violence done the retroperitoneal tissues, accentuated later perhaps by beginning sepsis, fat necrosis, or other effects of the pancreatic juice. The pain of acute pancreatic disease is violent and far-reaching; the constitutional signs are marked, and in most cases rapidly fatal. The pain itself is not sufficiently distinctive in pancreatic hemorrhage to differentiate it from the pain of other epigastric lesions considered later, though, in connection with other evidence, it may be strongly significant of the true lesion.

In rupture of liver, spleen or kidney, pain is at times an insignificant factor; at other times it is a prominent one. Inasmuch as these injuries result, when the organ is healthy, from extreme violence, more or less pain naturally results from that violence. I have seen, lying free in an abdominal cavity, distended with blood, the spleen broken into several pieces (Mixer's Case). I have found a fragment of liver completely separated from the great lobe, with a large hemorrhage into the peritoneal cavity. In each case pain was an early and prominent symptom, calling attention to a probable visceral fracture—a diagnosis confirmed by the signs of hemorrhage. The severe pain of initial violence, increased indirectly by hemorrhage, gradually subsides as the signs of hemorrhage become marked. The diagnosis in traumatic cases must depend upon the signs of hemorrhage following a violent blow, rather than upon the character of the pain. The pain in ovarian torsion is owing partly to the sudden interference with the circulation of the tumor, and partly to the excessive distention of the tumor either by blood extravasated from the obstructed veins, or by other fluids of a passive congestion. The pain is that of a suddenly enlarging and sensitive ovarian tumor—hemorrhage, with its familiar signs, sometimes augmenting the shock of ovarian torsion. In the hemorrhage of gastric or duodenal ulcers no pain is present unless there is at the same time a perforation into the abdominal cavity.

The pain of abdominal lesions dependent upon rapid and extensive extravasations of septic material is sudden, sharp and overwhelming. It is the very first symptom of extravasation, often introduced by a sensation as if something had suddenly given way. In the beginning the pain is continuous, violent, and almost unbearable. Later it becomes paroxysmal and intermittent, or dull and continuous. The pain, which is at first localized sharply in the region of the extravasation, becomes quickly generalized as the septic material spreads about the abdominal cavity. When the peritonitis becomes generalized, and the distention excessive, pain usually subsides. It often leaves the patient entirely when the general condition is hopeless. Complete cessation of pain is in the later hours, therefore, a sign of grave significance. The effect of pain upon the patient is

often extraordinary. It is marked mentally by anxiety and physically by shock.

The diagnostic and prognostic value to be given the single symptom pain is hard to determine, for pain alone is a very unusual symptom. Indeed, pain by itself is observed only in simple neuralgias; and even in simple neuralgias there is generally some accompanying sign by which its severity may be judged. In the paroxysms of trifacial neuralgia, for example, the violence of the pain is shown by involuntary reflex facial spasm. So, in the frightful pain of biliary and renal colic, the patient shows by involuntary reflex muscular contraction the severity of his suffering. In no case of simple functional pain is there the effect upon the mind of grave apprehension, or upon the body of constitutional shock. Functional pain, therefore, cannot be weighed except by the accompanying signs of facial suffering or of muscular spasm. On the other hand, the pain dependent upon organic lesions can be estimated by pulse, temperature, and constitutional shock.

In rapid septic extravasations pain is manifested, as already shown, by marked apprehension on the part of the patient and by shock more or less profound. It is, however, questionable whether the pain itself—except perhaps from its situation—produces any greater apprehension, or any deeper constitutional effect than the functional pain of a simple neuralgia. It is probably no subtle quality in the pain of peritoneal extravasations which makes its character and causes its far-reaching effects; but the beginning changes in the peritoneum itself. It seems clear that pain alone cannot always be relied upon in estimating the gravity of the causative lesion. It is rather what precedes and what accompanies pain, and more often perhaps what is conspicuous by its absence, that gives pain its real significance. Were it possible to discriminate between pain that means pain alone, and pain that means the most disastrous issues, the gravest conditions in abdominal surgery could be more easily and more safely met.

It must not be forgotten, however, that in not a few cases pain is not characteristic of the lesion which causes it, neither does it guide the surgeon to that lesion. It may apparently justify an exploration which proves entirely useless. Under some circumstances its significance cannot be correctly appreciated.

In estimating the weight to be given pain due to sudden and extensive extravasations, one must be aided by the accompanying general and local symptoms. If with sharp, excruciating and overwhelming pain there is rigidity of the abdominal muscles and general tenderness; if the temperature is normal or subnormal, and if the pulse is rapidly rising, the diagnosis of some extensive infection of the peritoneum is sufficiently warranted to demand immediate exploration. The surgeon can hope to see such a combination but seldom, for in an almost incredibly short time the temperature will have risen, and distention,

vomiting and obstipation will have developed. The perforation of a gastric ulcer, for example, puts the patient almost immediately in a state of collapse. There is excruciating pain, epigastric rigidity, general tenderness, and shock, so closely following each other as apparently to be synchronous. In a brief period of time, however,—in a few hours or even in a few minutes,—the temperature rises, the abdomen becomes distended, and a general peritonitis is under full headway. Pain of the character described, followed almost immediately by shock and collapse, means, in the great majority of cases, a general infection. If in such cases the remedy could be immediately applied, the mortality would be greatly reduced. Unfortunately, the significance of the onset of the pain and of the early accompanying symptoms is not appreciated. Pain is at once controlled by large doses of morphia; but during the resulting ease, septic contents of stomach, bowel, or abscess are escaping and spreading themselves through the remote areas of the peritoneum. With the passing of the opiate, pain returns, local signs are seen to be more widely spread, and constitutional effects more pronounced.

Large perforations of the bowel, of the appendix, of the stomach—whether from disease or from violence—all have the same course. It needs no argument to prove the cause of the great mortality in gunshot wounds of the small intestine. It is clearly an unimpeded escape of fecal matter in the first instance, and secondarily the delay in applying the appropriate remedy. No argument should be needed to show the cause of the corresponding mortality in perforations from disease. The commonest of perforations—that of an appendix with large lumen communicating with the cecum by a large opening—may be quite as rapidly fatal as that of a gunshot wound. The signs and symptoms that such a perforation causes should be just as easily seen and as quickly recognized as in perforations from any violence, and the remedy should be just as promptly applied.

Although a great variety of lesions may cause peritonitis,—through perforations of large size with rapid extravasations,—a differentiation of these lesions in a general way may be made by careful consideration of the initial pain and its accompanying symptoms.

The pain of appendicitis—the commonest of all—usually starts about the umbilicus or in the epigastrium. The pain is accompanied by signs of peritoneal violence—shock, normal or subnormal temperature, an increased pulse with tenderness, rigidity and vomiting. These symptoms, however, would indicate a perforated gastric ulcer, an acute pancreatitis, or even a perforated gall bladder, quite as much as a perforated appendix, except that very soon after its onset the pain becomes localized in the region of the appendix. In all varieties of abdominal extravasation it is quite common for the pain to start at or about the umbilicus, or in the epigastrium, and to be-

come localized in a short time near the seat of the lesion.

At the very onset of the pain, then, if it is localized in the epigastrium, one might hesitate between a biliary colic, an appendicitis, a pancreatitis, a perforation of a gastric ulcer, of an inflamed gall bladder, of a subphrenic abscess, or some other rarer lesion. One might hesitate if he saw the patient immediately, and if there was no history pointing to some previous disease in the epigastrium—gastric or duodenal ulcer, gallstones or chronic pancreatitis.

The predominance of the pain, rigidity, tenderness, however, soon localizing itself in the region of the appendix, points to the appendix. If the pain continues in the epigastrium, and if most of the symptoms are localized there, and if there is the least history of dyspepsia or gastric irritation, the perforation of a gastric ulcer is indicated; if there is a tender tumor in the region of the gall bladder, an acute cholecystitis; if other acute lesions are eliminated, an acute pancreatitis.

The initial pain in all lesions attended by rapid and overwhelming extravasation can be described by no other word than *excruciating*. The pain is so severe that it shows itself immediately by constitutional signs over which the patient has no control, and in the production of which microorganisms and their products play no part, for as yet there has not been time even for absorption. Like the pain of an extra-uterine pregnancy, this pain is the expression which the peritoneum gives to the violence which it has received. The temperature falls, the face is pale, the skin is covered with perspiration, the hands and feet are cold,—in a word, the patient is in a state of collapse. Though shock is severe and collapse profound, the effect of this violence done the peritoneum is never—as it often is in hemorrhage—an immediately fatal one. Recovery from shock soon follows. The patient begins to feel the effects of septic peritoneal absorption: the temperature rises; the pulse, if high at first, for a time falls; the cold and clammy skin becomes hot and suffused. In a few hours a general peritonitis is under full headway. The pain—which was at first excruciating and continuous—may have intervals of remission; it may become even paroxysmal. It is so severe that the patient often writhes in agony. There is no mistaking its extreme violence.

In a general way the pain of the second group—that of more or less rapid and extensive extravasation into the abdominal cavity—is the same in all the lesions. The only diagnostic significance of the pain itself lies often in the actual seat of the pain as observed by the patient, for the physician is never at hand at this crucial moment. The seat of that initial pain must be determined by careful questioning, though the patient is often unable, when first seen by the surgeon, to give intelligent replies.

The agonizing pain starting suddenly in the epigastrium indicates a perforation of the stomach, an acute pancreatitis, a rupture of the gall

bladder, an acute appendicitis; in the right iliac fossa, an appendicitis; in the pelvis, in women, a ruptured extra-uterine pregnancy, a ruptured tubal abscess; situated in close relation with an already existing abscess, a rupture of that abscess. An acute sudden pain of indefinite situation may indicate any of the more unusual lesions of the second group—a perforation of the small intestine, of the large intestine, the strangulation of a Meckel's diverticulum.

The diagnosis of the initial symptoms of the lesions of the second group can, in a very rough, general way, be determined when, in addition to pain, other early symptoms are considered. A sudden violent pain in the epigastrium suggests, as already stated, perforation of the stomach, a rupture of the gall bladder, an acute pancreatitis, an acute appendicitis. It indicates perforation of a gastric or duodenal ulcer if there has been the least previous history of those diseases, in a person of suitable age—though not infrequently perforation of the stomach takes place in a person apparently well, in whom no symptoms of gastric ulcer have ever been observed. The pain indicates an infection of the gall bladder, or the rupture of an infected gall bladder, if there has been a previous history of gallstones, or if there is tenderness, tumor, or both, in the usual position of the gall bladder. It points to the pancreas if there are no symptoms of a cholecystitis; and if there has been a history of gallstones in a person of suitable age,—40 or 50,—of full habit; if there is nothing pointing to the stomach, and if the localizing symptoms are in the centre of the epigastrium. The initial pain in an acute appendicitis may be distinctly referred to the epigastrium, though, as a rule, it is a general pain, becoming localized in the right iliac fossa. A sharp pain, permanently localized in the epigastrium, is unusual in acute appendicitis. Often when the symptoms and history indicate a pancreatitis, the disease will be found to be an appendicitis. If the diagnosis of acute appendicitis is made in all cases that suggest an acute pancreatitis, or other equally obscure lesion, that diagnosis will, in the great majority of cases, be correct. The acute, sudden, overwhelming pain occurring in the course of a typhoid fever points to the perforation of a typhoid ulcer.

The symptoms of a perforation not localized in the region of the stomach, duodenum, gall bladder, or pancreas, not localized in the region of the appendix or in the pelvis, with a history of previous intestinal symptoms, may indicate perforation of an intestinal ulcer other than typhoidal, especially if the history points toward intestinal ulceration of any kind. At times these symptoms are accompanied by the well-recognized tumor of intestinal cancer or intestinal tuberculosis.

In stabs and gunshot wounds pain is the natural sequence. The pain when the alimentary canal is perforated, however, can be distinguished from the pain when no perforation has taken place; for, in the latter case, there is only the simple

pain of the stab or gunshot wound, which is usually transitory and trivial, whereas the pain of perforation is, as already stated, severe and accompanied by other signs of extravasation.

Wounds and ruptures, traumatic and ulcerative, of the gall bladder, urinary bladder, or kidney, or the spontaneous rupture of a septic and triable spleen, present the pain of a rapid and widespread peritonitis. The seat of the initial pain will be in the region of the gall bladder, urinary bladder, kidney or spleen. Suggestive signs will have been observed in the history of a cholecystitis or of a septic spleen. Rupture of the urinary bladder and rupture of the kidney, always occurring from violence, will be confirmed by the presence of blood in the urine.

Though the pain when the patient is first observed is, in most of the localized infections, general, and though in general peritonitis it becomes localized for a short time after becoming general, the very first attack should be, and doubtless is, limited to the exact seat of the extravasation; but not in all cases in equal proportions. For example, an appendix perforation may have a sharp pain in the exact region of the appendix, followed by a severe pain at the umbilicus or in the epigastrium. Later the pain is at the right iliac fossa, where it is distinctly localized in a localized peritonitis, but whence it spreads over the whole abdominal cavity in general peritonitis. The initial pain in acute appendicitis is, however, in my experience, less frequently confined to the exact origin of the extravasation than in any other acute abdominal infection.

The pain of those forms of intestinal obstruction caused by volvulus, intussusception, internal strangulation, mesenteric embolism and thrombosis, is not at first to be distinguished from the pain of simple mechanical obstructions, because some hours must elapse before extravasation will follow necrosis of the affected bowel. When the case is seen for the first time after gangrene and giving way of the affected coils has taken place, the pain of a general and overwhelming infection will be present. The nature of the lesion will be indicated by the history of a preceding acute intestinal obstruction, occasionally with physical signs of the lesion present.

(To be continued.)

## THE TREATMENT OF ECLAMPSIA BY THE METHOD OF PROF. W. STROGANOFF.<sup>1</sup>

BY F. S. NEWELL, M.D., BOSTON.

THE subject of the treatment of eclampsia has been discussed so often by this society that I feel that an apology is necessary in forcing it once more upon the attention of the members. My excuse is, however, a sufficient one.

Within the last year a remarkable series of cases of eclampsia has been reported by Prof. W. Stroganoff, which occurred under his direct super-

vision, and which gave, under the method of treatment to which they were subjected, absolutely unique results as far as I have been able to ascertain. This series included 58 cases which came under Stroganoff's observation in his hospital and private practice during the 3 years 1898 to 1900. In all of the cases included in this series a definite routine treatment was adopted, and the hitherto unheard-of result (that is, in any considerable number of cases) of absolutely no mortality was obtained.

When we consider that the average mortality in eclampsia, treated in hospitals under the most approved methods, whether in this country or abroad, has varied from 20 to 30%, it is obvious either that the cases reported were of an unusually benign type, or that the treatment adopted was markedly more efficient than any previous method, or at least more intelligently applied. Since it is hardly conceivable, however, that among so many cases, covering so long a period of time, there should have been no grave cases, we are led to conclude that the method of treatment adopted must have been responsible to a greater or less extent for the excellent results obtained.

After a careful study of the pathology and symptomatology of eclampsia, Stroganoff formulated a theory of the disease for himself, and instituted a method of treatment to meet the indications which he considered as the essential features of the disease. His views on the nature of eclampsia may be briefly summarized as follows: Puerperal eclampsia is an acute infectious disease which runs an almost definitely self-limited course of a few hours' duration, seldom exceeding 24 and still more rarely 48 hours in length. In the great majority of the cases the principal source of danger to the patient lies in the convulsions, which exert a harmful action on the heart, the respiratory centre, the kidneys and the general condition of the patient. They are often the cause of apoplexy in the fetus, resulting in its death before delivery. Now, it must follow as a natural result that if the convulsions can be eliminated or lessened in severity, the malignant character of the disease will be done away with to a considerable degree, since the resisting power of the organism will probably suffice to nullify the effect of the infective agent when the strain induced by the convulsions is removed. This should, therefore, be the main object of treatment, since we are unable at present to remove the cause of the disease.

In accordance with these views which have just been stated Stroganoff instituted a method of treatment which was designed to accomplish the following results:

(1) The prevention of the convulsions by lessening the irritability of the nervous system and by removing all external sources of irritation, especially those connected with the birth canal.

(2) The strengthening of the vital processes by careful supervision of the cardiac and pulmonary circulations; by securing as large a quantity of oxygen as possible; and by prompt delivery, if,

<sup>1</sup> Read before the Obstetrical Society of Boston, Nov. 19, 1901.

with these measures and with a proper diet, the convulsions do not cease.

The treatment is in brief the following: The administration of oxygen during the convulsions; the use of morphia and chloral to control the convulsions; the free use of cardiac stimulants when the heart action weakens; prompt delivery when the convulsions do not yield to treatment; a milk diet; and the avoidance of all methods of treatment which tend to depress the patient.

The administration of oxygen is recommended as the only treatment to be applied during the convulsive attacks. The use of chloroform and ether during the convulsions he considers to be not only ineffective in stopping the convulsion, but also injurious to the patient. Ineffective, because, since respiration is almost suppressed during the attacks, not enough of the anesthetic can be inspired to produce the desired result, that is, the suppression of the given convulsion; and injurious because the use of the anesthetic still further decreases the scanty supply of oxygen which the patient is able to obtain, and which is, on account of the asphyxia due to the interference with the respiration which accompanies each convulsion, the element which is most necessary for the welfare of the patient. The indications during each convulsive attack call for the free administration of oxygen, with precautions to prevent the patient from biting her tongue, and the removal of all weight from the thorax.

If the patient is under observation at the time of the first convulsion, morphia sulphate  $\frac{1}{4}$  gr. is given hypodermically at once, and otherwise as soon as the physician reaches the case, to be repeated in cases of average severity at the end of an hour. In severe cases, that is, if another convulsion occurs within that interval, or if the patient is restless and unruly, the dose should be repeated earlier, while in mild cases, especially post-partum, the interval may be lengthened to 2 hours. In severe cases a third injection of morphia should be given after the same interval.

About 2 hours after the last dose of morphia, or earlier if the patient is restless, chloral hydrate is given (20 to 40 gr.), by mouth if the patient can swallow, otherwise by rectum. Light narcosis is to be maintained for the next 24 hours by the repetition of the chloral at intervals of from 6 to 10 hours without reference to the cessation of the convulsions. If the patient is restless or unconscious the narcosis should be continued for a second 24 hours. If at any time during this interval convulsions recur or threaten, the morphia should be repeated as at first, and the use of chloral should be continued.

Stroganoff believes that the size of the doses of morphia is of great importance, and should never exceed  $\frac{1}{4}$  gr. at a single dose, as serious depressant effect may follow the exhibition of the larger doses ( $\frac{1}{2}$  gr.) recommended by Veit.

If the convulsions do not yield within a reasonable time to the use of morphia and chloral, immediate delivery is indicated, as in 60% of all cases in which the convulsions begin during la-

bor they cease with or shortly after delivery. The method of operative delivery to be adopted should be that which will produce the least degree of shock, as in a patient suffering from the severe toxemia of eclampsia a degree of surgical shock which would be well borne under ordinary conditions may prove fatal.

The further treatment of eclampsia as recommended by Stroganoff may be summarized in a few words: All irritation of the patient, especially of the birth canal, is to be avoided as far as possible. The use of general anesthesia is advised whenever the patient is to be catheterized, a vaginal examination made, etc. A milk diet is to be insisted on. If the patient requires stimulation the use of normal salt solution is advised as the most satisfactory method of stimulation, although the use of brandy and sulphuric ether is advocated for sudden emergencies.

In regard to the sweating treatment, which is so generally employed in eclampsia, Stroganoff takes the opposite view from that which is usually held. He claims, and my own experience, though too limited to be of any particular value, corresponds with his, that the use of hot-air and hot-water baths has in many cases a distinctly harmful effect, acting not only to depress the overburdened heart still further, but also to increase the nervous irritability and thus favor the recurrence of the convulsions. These disadvantages more than counterbalance the gain to the patient which is due to the comparatively limited excretion of toxins which takes place through the skin. A warm bath to cleanse the skin has, on the other hand, no harmful effects, and in many cases produces a distinctly soothing effect on the patient.

Within the last few months 9 cases of eclampsia have been treated at the Boston City Hospital and at the Boston Lying-in Hospital, more or less in accordance with the principles advocated by Stroganoff, that is, morphia and chloral were employed as advised by him, but in only 5 cases was his method followed in detail, that is, to the exclusion of the depressant sweating treatment. The cases are too few in number to throw any light on the true value of the treatment, but the results proved satisfactory in the main, post-partum cases in particular yielding readily to the sedative treatment.

It is not worth while to report the cases in detail, but such general points of interest as the cases furnish may well be studied. In 8 of the 9 cases the convulsions ceased promptly as soon as the second dose of morphia was administered. In the ninth case the treatment was not begun until late, as the patient did not come under observation until she had had several convulsions, and the sedative treatment had apparently no effect in checking them.

Among the 9 cases 4 were post-partum and 5 were ante-partum. In all the post-partum cases the convulsions ceased promptly and the patient recovered. In the ante-partum cases the convulsions ceased promptly in 4, while in the fifth the

treatment had no apparent effect on the convulsions, which continued and increased after delivery in spite of all the measures taken to prevent them, the patient dying about 24 hours after the first attack.

In 4 cases the details of the Stroganoff treatment were not carried out, the only change from the usual sweating treatment being the use of morphia and chloral. Three of these cases were ante-partum and one post-partum. Only 1 of the ante-partum cases required delivery at the time of the attack, labor having begun after the onset of the convulsions. In this case the convulsions ceased promptly, but the patient died 3 or 4 days later of cardiac complications, the strain of the convulsions having induced acute dilatation of the heart. The other ante-partum cases yielded promptly to treatment, and both patients recovered, but both miscarried within a few weeks. The post-partum case made a normal convalescence. Of the 5 cases in which the attempt was made to follow out the details of the Stroganoff treatment, 3 were post-partum and 2 ante-partum. In the 3 post-partum cases the use of morphia and chloral stopped the convulsions promptly, and all of the cases recovered without further complications. Of the 2 ante-partum cases 1 recovered and 1 died. The patient who recovered had no convulsions after treatment was instituted, and did not require operative delivery, but on the third day from the beginning of the attack delivered herself of a dead child. Her convalescence was complicated by a protracted attack of bronchopneumonia, but she eventually made a complete recovery.

The second case did not come under observation until she had had 4 convulsions, and the use of morphia and chloral had no apparent effect on the convulsions. The patient was in labor at the time she entered the hospital and delivered herself of a living child soon afterwards, but the convulsions steadily increased in frequency and severity, and the patient died about 24 hours after the onset of the symptoms.

These cases do not, of course, furnish sufficient evidence to judge of the true value of any method of treatment, but certain conclusions may be deduced from them which may prove to be valuable:

(1) In post-partum eclampsia the use of morphia and chloral in combination seems to have a distinctly beneficial action in controlling the convulsions.

(2) In ante-partum eclampsia the treatment is less efficient than in the post-partum form, but the course of the disease seems to be altered for the better in the majority of the cases.

(3) Although the treatment has not given as good results in our cases as in those reported by Stroganoff, a further trial is indicated, since our results have not been any worse than under any other method of treatment which has been tried, and further experience may disclose errors in the application of the treatment which may be remedied to good effect. At any rate, a method of

treatment which has proved so efficient in the hands of its originator should not be abandoned until it has had a more thorough trial than we have been able to give this one as yet.

## SURGERY OF THE GALL BLADDER AND DUCTS.\*

BY JOHN W. KEEFE, M.D., PROVIDENCE, R. I.,

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[Concluded from No. 7, p. 160.]

I SHALL now mention a few points which will enable us to determine the presence of gall bladder disease. A careful history and examination is necessary to determine the presence of gallstones. One should inquire carefully the age, sex and occupation of a patient, the cause of death of parents, brothers and sisters, as Riedal states that there is an hereditary tendency to the formation of gallstones. Previous illness should be carefully discussed, as patients frequently come with histories of appendicitis, floating kidney, ulcer of the stomach, malaria or dyspepsia, when the true condition of affairs is caused by gallstones. The character of the pain is one of the most important signs as to the presence of gallstones. The pain of gallstone colic is not always cramp-like, and does not always show itself with extraordinary violence. A serous cholecystitis may cause but slight discomfort, felt as a light pressure in the region of the gall bladder and as a moderate cramp of the stomach. An acute inflammation of the gall bladder may cause intense pain, especially if the surrounding peritoneum participates in the inflammation. If stones are in the gall bladder, the pain is chiefly in the right hypochondriac region, and usually radiates into the breast and back. If stones are in the common duct, the pain is more often felt in the epigastrium. A patient with gallstones may have very little pain after eating lobster, mayonnaise and cucumber salad, while the pain may be severe, although the diet is unirritating; the reverse being true in ulcer of the stomach. The biliary colics are more apt to occur at night rather than shortly after eating, while the pain in ulcer of the stomach occurs immediately after the ingestion of food and drink. The pain of gallstone colic is localized in the region of the gall bladder. It may be boring, burning or nagging in character.

Kehr states that the majority of pains which are called cramps of the stomach are gallstone colics. If one examines carefully, he will find a sensitiveness to pressure over the lower border of the liver, in the region of the gall bladder. Cholecystitis may be mistaken for appendicitis where the appendix is turned upward, so that its extremity may reach the vicinity of the lower border of the liver. The pain in ileus resembles gallstone colic, but the location of the pain will

\* Read before the Rhode Island Medical Society, Dec. 5, 1901.



oftentimes, with other symptoms, differentiate the diseases. The pain in kidney colic, when not typical, may resemble gallstone colic, but usually the pain radiates along the ureter to the bladder. Jaundice occurs with all possible diseases of the liver, and the care in diagnosis will be to exclude all liver diseases which develop with pain and enlargement of the liver. Although jaundice occurs in gallstone diseases relatively seldom, its presence is an important factor. In obstruction due to tumor, the jaundice constantly increases, while in stones in the choledochus the intensity of the jaundice varies. The character of the stools should be carefully noted.

The amount of fever often determines the intensity of the inflammatory process. If vomiting occurs, its character should be carefully noted as to presence of blood, whether a stone has been vomited and the color of the vomited matter. Gallstone patients frequently have disorders of the intestines. The occurrence of stones in the feces is the best evidence of cholelithiasis. Constipation at one time and diarrhea at another frequently occur. The patient loses in body weight and often a cachexia develops, although cancer is not present. By constant pain, the nervous system may be sorely tried. On account of the severity of gallstone colic, many patients become affected with the morphin habit.

By inspection one determines the presence of cachexia, the expression of the face and the existence of jaundice. In thin patients we may see the lower border of the liver standing out clearly, may even see the fullness from a distended gall bladder. We are also able to note a change of its position on inspiration and expiration, and in an acute cholecystitis we may see the characteristic prominence of the right hypochondrium and the pit of the stomach. By palpation we may determine the size of the liver, the condition of the gall bladder, and by the area of sensitiveness one determines how extensive the painful region is. Bimanual palpation should also be practised. The patient should lie on his back with his knees drawn up and the mouth open.

In diseases of the liver, percussion helps us in many ways. We determine the upper and lower borders of the liver and thus judge of the size of the organ. Percussion over a gall bladder may be deceptive, as a coil of intestine may intervene between the bladder and the abdominal wall. Auscultation in cholelithiasis is of little value, as the rattling of stones rarely occurs. The diagnosis by exploratory puncture must be condemned, because purulent fluid may fill the gall bladder and leak out into the peritoneal cavity. A careful examination of the blood may help in the differential diagnosis of gallstone disease.

Early operation will more frequently be resorted to when medical practitioners become more familiar with an accurate diagnosis of diseases of the biliary passages and the remarkable results obtained in gall bladder surgery. In no field of capital surgery may a careful operator obtain such brilliant results.

CASE I. W. B., male, 52 years, policeman, entered St. Joseph's Hospital Feb. 28, 1896. Operation Feb. 29, 1896.

Cholecystostomy: Removal of gallstone. Discharged from hospital with biliary fistula April 23, 1896. Fistula closed May 27, 1896. Complete cure to date, Nov. 20, 1901.

I first saw patient Feb. 28, in consultation with Dr. J. E. Brown, and later with Dr. Noyes. Four years ago he had acute attacks of cramps in right hypochondriac region, which lasted a few days. Since, has had three well-marked attacks of these cramps. Has suffered from dyspepsia, and considered it the cause of the colics. Last attack two years ago.

*Present illness.*—Five days ago taken with severe pain over gall bladder region, which has continued with more or less severity ever since. He has been nauseated at times but has not vomited, constipated bowels, perspires freely and has hot flashes. Temperature 101°, pulse 90, urine normal. Inspection shows a corpulent, well-built man with marked jaundice of a greenish hue and anxious expression of countenance. Abdomen distended. A point of localized tenderness over gall bladder region is found and a small mass is easily detected on palpation. Has had copious bowel movements; no stone found.

*Diagnosis.*—Cholecystitis with cholelithiasis.

Feb. 29, 1896. Operation: Ether narcosis; incision four inches long, parallel with free border of ribs, on right side. On opening peritoneal cavity, the gall bladder was found distended and adherent to the omentum and intestines. An aspirator withdrew several ounces of dark, seropurulent fluid. No stones could be felt in the ducts. The gall bladder was stitched to the skin with silk sutures, incised, irrigated and drained by means of a perforated glass drainage tube. Abdominal wound partially closed with silk-worm gut sutures; aseptic dressing applied.

March 1. Considerable mucous discharge from gall bladder, but no bile.

March 7. Daily dressing. Today, temperature 103°, pulse 120. There is considerable cellulitis over greater portion of abdominal wall.

March 14. Temperature 99°, pulse 100. Cellulitis has almost disappeared.

March 20. The gall bladder has been frequently probed to determine the presence of a stone, and not until today could one be found. A gallstone the size of a pigeon's egg was removed with some difficulty, after which there was a free flow of bile.

March 25. Temperature and pulse normal. Bile escaping freely; wound drawn together.

March 30. A less amount of bile discharging; wound filling in rapidly.

April 3. Patient sits up.

April 23. Patient returns home with biliary fistula.

May 3. Fistula completely closed. Has gained in weight and strength.

Nov. 20, 1901. Patient the picture of health.

CASE II. W. H. S., female, 50 years. I saw in consultation with Drs. Noyes and Ely, April 15, 1896. Operation April 18, 1896, at her home.

Cholecystotomy: Removal of numerous stones; atrophied gall bladder; drainage. Died four days later.

This patient had been ailing over 6 months with gastric disturbances and severe recurring pains over gall bladder region. She was a medium-sized woman, who had lost considerable flesh, was markedly jaundiced and had a cachectic appearance with an anxious expression as though she was in pain. There was pronounced tenderness on pressure over the centre of a line drawn from the ninth costal cartilage to the umbilicus.

Although the patient's general condition was unsuited to undergo an operation, it was thought that she would soon die from exhaustion if not speedily relieved.

*Diagnosis.*—Cholelithiasis with obstructive jaundice.

April 18, 1897. Operation at her home with careful aseptic precautions, assisted by Drs. Ely, Noyes and McGuirk. The gall bladder was found lying very deep



and markedly atrophied, its diameters being about two inches by one-half inch. The gall bladder, cystic and common ducts were filled with small stones. The ducts were opened and the stones removed. This was attended with a free escape of bile. A drainage tube, surrounded by iodoform gauze, was placed in the gall bladder and ducts. The peritoneal cavity was carefully walled off with gauze so that there was no soiling of the peritoneum. The size and position of the gall bladder rendered stitching it to the peritoneum out of the question.

The patient stood the operation fairly well, and while there was subsequently no evidence of peritonitis or untoward condition in the wound, the patient gradually sank and died four days after operation. An earlier operation would probably have saved her life.

CASE III. G. S. S., male, 50 years.

Cholecystitis: Numerous adhesions; pain; gallstone colic; jaundice; cheliotomy. Adhesions destroyed. Complete recovery.

This man I assisted Dr. Baxter to operate on at the Woonsocket Hospital Jan. 31, 1899. Dr. Baxter first saw him on Nov. 22, 1898. He had then been confined to bed since Sept. 20, 1898, suffering from chills, fever, vomiting, intense pain in upper right quadrant of abdomen. Two physicians who had previously attended him had diagnosed malaria, but antimalarial treatment failed to relieve him. He was emaciated, anemic and jaundiced, was vomiting almost constantly, particularly on taking nourishment. Every second or third day he had a chill followed by a fever; temperature 102° or 103°. Severe paroxysms of pain over region of gall bladder, relieved by morphin. Numerous remedies were tried, sodium phosphate, olive oil, etc. He gradually became weaker and abdominal pains greater. He then consented to enter the hospital and undergo an operation.

Dr. Baxter made an incision about four inches long, parallel with free border of ribs on right side, into the peritoneal cavity. A mass of adhesions presented; so we broke up numerous adhesions about ilium, colon, gall bladder and ducts. The gall bladder was small and deeply seated on the under surface of liver. No stones could be felt either in ducts or gall bladder. Bile was forced through the ducts by pressure on gall bladder. Abdominal wound was closed with buried sutures in peritoneum, muscles and fascia; catgut in the skin.

Patient was in considerable shock following the operation; but in a few days had rallied completely.

Nov. 25, 1901. Nearly three years since his operation; he is reported as well and strong.

CASE IV. E. W. B., male, 61 years, engineer; entered Rhode Island Hospital March 14, 1899.

Cholecystitis: Cholangitis; adhesions. Operation March 14, 1899: Laparotomy; removal of adhesions; pressing out contents of ducts. There was a complete recovery.

Father died of pneumonia, aged 84; mother died of cerebral hemorrhage, aged 93; brother and sister living. During Civil War had two attacks of typhoid fever. Twenty-one years ago thinks he passed stone, judging from pain and cramps. In July, 1898, he was taken suddenly with intense pain of a colicky character in the epigastric region. This pain lasted a day or two and was followed by pronounced jaundice. The stools were hard and slate colored. Morphin in large doses was necessary to relieve pain. After 3 days the pain again returned but lasted a short time. Felt fairly well until Jan. 3, 1899, when he had a recurrence of above symptoms. Since then he has had four more attacks. During paroxysms the urine is high colored and scanty, the stools slate colored, the skin jaundiced, the white portions of eyes pronounced yellow tint. Pain in right hypochondriac region is sometimes sharp, as if made with a knife, and radiating toward the right shoulder. Soreness in the right side remains for several days after the attack. No vomiting; tenderness on pressure over gall bladder region; temperature and pulse normal. The attacks are so frequent and painful of late that he has lost considerable flesh

and is unable to attend to his work as foreman in a car-repair shop.

March 17, 1899. Operation: Four-inch incision through right semilunar line, parallel with and four inches to the right of median line. Lower end of wound on a level with umbilicus. Abdominal cavity walled off with gauze. Gall bladder and ducts brought plainly into view after separating light adhesions. The gall bladder was somewhat distended, and no stones could be felt either in the ducts or the gall bladder. Pressure was made with the thumb and fingers on the gall bladder, forcing its contents into the bowel. Abdominal wound closed in layers without drainage. Continuous catgut in peritoneum. Silver-wire mattress sutures in fascia, these being designed to remain *in situ*. Silver-wire subcuticular suture for approximating the integument. Patient took ether poorly, but was in good condition at close of operation.

March 21. Patient has had normal pulse and temperature until today, when he complains of pain which lasted four hours, relieved by one-fourth grain morphin suppository. Temperature 101°, pulse 120.

April 3. Severe attack of abdominal pain, character similar to previous attacks; lasted two hours. Relieved by morphia administered hypodermatically and by suppository. Temperature 101°, pulse 130.

April 10. Paroxysm, relieved by anodyne; some jaundice.

April 11. Patient insisted on going home.

Nov. 17, 1901. Patient examined at my office. Says he has had no return of attacks since leaving the hospital. Has gained in flesh and has been able to work steadily ever since.

CASE V. A. M., 36 years, female, married.

Cholelithiasis: Cholecystitis; empyema of gall bladder; cholecystostomy; later, hydrops of gall bladder; removal of stone occluding cystic duct.

Patient was admitted to my service at the Rhode Island Hospital Jan. 11, 1900, having been sent to the hospital as a case for immediate operation for appendicitis. On inquiry we learned that she had been treated on the medical service of the hospital from Nov. 17 to Dec. 20, 1899, no positive diagnosis being made, although it was thought the disease might be typhoid, as the blood gave a positive Widal reaction and rose spots were found. The records state that in August she had malaria (?). Twelve days ago commenced to feel badly, and 8 days ago had nausea, vomiting, headache, abdominal pain and pain in back, chill, and slight diarrhea, loss of appetite and strength. Temperature 103.4°, pulse 100, respiration 28; urine, acid, 1,028; trace of albumin, granular casts; tongue dry and coated; some tympanites. Treatment: dilute 10 minims hydrochloric acid; to be taken every 4 hours.

Nov. 19. General condition good; feels better.

Nov. 21. Widal positive; rose spots; feels comfortable.

Nov. 23. Some tympanites and abdominal pain.

Nov. 25. Quinin, 5 gr.; taken every 8 hours; not so much pain.

Nov. 27. Comfortable; abdomen less distended.

Dec. 1. Temperature falling.

Dec. 3. Improvement continues; temperature normal; solid food.

Dec. 16. Improving until today. Attack of indigestion.

Dec. 20. Discharged. Cured.

*Present illness.*—She was taken with severe pain, sharp and cutting in character, greatest near the right ninth costal cartilage, radiating toward the back. Vomited a greenish fluid; temperature and pulse elevated; tenderness on pressure over gall bladder region, slight dulness on percussion and sense of resistance. Has never been jaundiced, but says she has had several attacks similar to the present. Bowels have not moved in four days. Cathartics and enemata give free evacuations with great relief. Given sodium phosphate and strychnia.

*Diagnosis.*—Cholelithiasis.

Jan. 24. As patient had been confined to bed for so many weeks, and had been kept on a liquid diet, she was advised to leave the hospital, with an idea of improving her general condition, and to return later for operation.

Feb. 10, 1900. She re-entered the hospital. She has had more or less gastric disturbance and pain since she left, 2½ weeks before. A sensitive mass could be felt just below right ninth costal cartilage. Urine normal, as well as temperature, pulse and respiration.

Feb. 14. Operation was today abandoned, as patient became cyanotic from faulty administration of gas-ether.

Feb. 16. Operation: Ether; 3-inch incision in right linea semilunaris. Gall bladder found distended; it was aspirated and creamy pus withdrawn. A purse-string suture closed opening made by aspirator needle. Gall bladder was stitched to parietal peritoneum with chromicized gut, incised and irrigated with normal saline solution; considerable pus was removed. By probing no stone could be detected; iodoform wick placed in gall bladder. Cigarette wick placed in peritoneal cavity, as adhesions had been broken up. Wound in peritoneum partially closed with chromicized gut and silkworm gut.

Feb. 17. Dressed; wick removed from abdomen.

Feb. 18. Wick removed from gall bladder and irrigated with saline solution.

Feb. 21. Daily dressing; some discharge of bile in dressing today.

Feb. 23. Operation: Ether; sinus leading into gall bladder dilated; probed for stone, but none found; drainage tube and gauze wick inserted into gall bladder; aseptic dressing.

March 6. Considerable distress from food; wound discharges pus and mucus.

March 17. The discharge is practically all mucus.

March 26. Left hospital today with sinus discharging mucus; to return twice a week to have dressing changed.

April 9. I thought I felt a stone on passing a probe into sinus.

April 13. Gas-ether. Sinus dilated; gall bladder explored but stone could not be felt; gauze drain; aseptic dressing.

April 18. Pain and discomfort over region of gall bladder.

Dec. 22. Much improved.

Jan. 5, 1901. Re-entered Rhode Island Hospital. Fistula had closed on several occasions, and following closure pain ensued; so sinus was reopened. At times bile had been discharged, but more frequently mucus. General condition of the patient had greatly improved.

Jan. 8, 1901. Operation: Gas-ether; incision 1 inch to left of former incision and 2 1-2 inches long, into abdominal cavity. A finger introduced discovers stone wedged in cystic duct. Stone was pushed into gall bladder, sinus enlarged and stone one-half inch in diameter removed. Abdominal incision was closed. Cumol gut in peritoneum with chromicized gut in fascia and a subcuticular silver wire in skin; gauze wick in gall bladder. Acted badly under anesthetic.

Jan. 11. Bowels move freely; wick replaced in sinus.

Jan. 12. Daily dressing free from discharge of bile.

Jan. 20. Silver suture removed; primary union.

Jan. 26. No discharge; fistula closed.

Jan. 29. Discharged from hospital. Cured.

CASE VI. J. R. W. Male, 42 years, deputy sheriff, married; patient of Dr. Rouse; seen by Drs. Horace Wilcox and Geo. F. Keene.

Cholelithiasis; Cholecystitis; jaundice; cholecystostomy. Removal of stone. Recovery.

Entered St. Joseph's Hospital May 18, 1901. Twenty years ago first noticed colicky pains in abdomen, and a number of times since has had severe gallstone colics. Has not enjoyed good health during this time. Bowels always constipated. Six months ago had an attack of severe pain in gall bladder region, vomited several times and was deeply jaundiced; severe symptoms passed off in 48 hours; relieved by morphin. During last two

months has been in poor condition, has lost flesh and strength and has been confined to bed most of the time. One week ago he was taken with severe pain in gall bladder region; frequent vomiting, clay-colored stools, marked jaundice. Patient is of large frame, very much emaciated, an anxious expression, conjunctiva stained yellow, skin greenish hue, tongue thickly coated; urine, 1,022, acid, dark-brown color, small amount of albumin, no casts, great quantity of bile pigment; tenderness over gall bladder region; what appears to be an inflammatory mass may be felt.

Diagnosis.—Cholelithiasis; Cholecystitis with obstructive jaundice.

May 20, 1901. Chloroform; incision four inches long along outer border of right rectus muscle; lower end of incision on a level with umbilicus. Gall bladder found distended and adherent to omentum; freed from adhesions and aspirated, removing clear yellow fluid. By palpation 13 small and 1 large stone were found in gall bladder, cystic duct and occluding common duct; they were pushed into gall bladder and removed, through an opening made in gall bladder. The gall bladder was sutured to the parietal peritoneum with silk and catgut, its cavity irrigated with warm normal salt solution and an iodoform drain introduced. Silkworm gut sutures partially closed abdominal wound. Reacted well from operation.

May 23. Stools dark brown.

May 28. Bile flowed through wound.

June 1. Large amount of bile discharged, necessitating changing dressing three times a day.

June 15. Amount of bile diminished; stools normal.

July 2. Sat up today. General health greatly improved.

July 8. Discharge of bile slight.

July 11. Patient to go home. Was advised to remain a short time longer, but went home.

July 19. After returning from a short drive was taken with chill, pain and slight jaundice. The wound was explored, calomel, salines and enemas given, with daily doses of sodium phosphate. Since this time there has been gradual improvement. Wound healed in one week.

Nov. 12, 1901. Examined patient today at my office. General condition excellent. He has gained 40 pounds since leaving the hospital.

CASE VII. M. N., female, 33 years, married, sent to me by Drs. Hills and Thiebault. Entered St. Joseph's Hospital Aug. 27, 1901.

Cholelithiasis; Hydrops of gall bladder; cholecystostomy; removal of 42 stones; immediate suture of gall bladder; abdominal wall closed without drainage. Recovery.

Patient had not been feeling well for a year. She had loss of appetite and uncomfortable feeling in the epigastric region. She had lost considerable flesh. Two months ago she noticed a mass in the right side of the abdomen, which could be moved about. Stools normal; never jaundiced; urine negative; no attacks of colic. The patient looked pale, and was quite worried about her uncomfortable general condition. Examination revealed a mass in the right lumbar region, about the shape and consistency of the kidney. There seemed to be a tympanitic note between this mass and the liver. The mass could be moved upwards under the ribs; downwards nearly to the crest of ilium; and across, five inches beyond the median line to the left side. This great range of motion was one of the reasons which led us to think that the mass was more likely to be a wandering kidney than a distended gall bladder.

August 27, 1901. Operation: Gas-ether; incision three inches long in right linea semilunaris, lower end of incision on a level with umbilicus. The mass was found to be the distended gall bladder. The abdominal cavity was walled off with gauze; the gall bladder opened and several ounces of clear watery fluid escaped. Forty-two gallstones were removed, the greater number being small; two were about one-half inch in diameter. One stone completely occluded the cystic duct. After removing the stones the gall bladder was

irrigated with six-tenths of 1% salt solution. Its walls appeared so little changed from normal that, feeling sure that all the stones were removed, I decided to close the wound in the gall bladder with silk Lembert sutures. This being accomplished I closed the abdominal wound in layers, continuous cumol catgut in peritoneum, chromicized gut in fascia, and subcuticular silver wire in skin.

Sept. 6, ten days after operation. Silver wire stitch removed; primary union. The highest temperature was the day following operation, 99°; normal ever since.

Sept. 13, seventeen days after operation. Patient returned to her home with a good appetite and happy countenance.

Nov. 20. I learned she has been quite well since leaving hospital.

CASE VIII. R. G., female, 27 years, married, entered St. Joseph's Hospital Oct. 14, 1901.

Cholelithiasis: Cholecystostomy; removal of stone. Recovery.

During the past 6 years, with intervals from 3 to 6 months, she has had attacks of pain in the right hypochondrium, radiating to back. These attacks lasted about 3 days and were relieved by morphin. First noticed jaundice 2 years ago during an attack with clay-colored stools. At that time she remained 2 months in a hospital in Fall River.

*Diagnosis.*—Gallstones.

Operation advised but patient declined. She has frequently had chills followed by profuse perspiration. She entered St. Joseph's Hospital for repair of lacerated cervix and perineum and relief from a retroverted uterus. While being prepared for operation she was taken with severe biliary colic, the pain being so intense that she lost consciousness on two occasions and had convulsive twitchings. There is localized tenderness over gall bladder area; pain radiates to back.

Oct. 22. Operation: Ether; incision 3½ inches long at outer border of right rectus muscle. Gall bladder deeply seated, very much atrophied, about two inches long. Stone filling cystic duct. Gall bladder incised and stone removed in fragments. It was impossible to stitch gall bladder to parietal peritoneum, so abdominal cavity was walled off with gauze and an iodoform gauze wick placed in bladder and cystic duct. Peritoneum was partially closed with cumol catgut; the fascia with chromicized gut and skin with subcuticular silver wire suture. The next day bile appeared in the wound.

Oct. 24. Walling-off gauze removed.

Oct. 25. Gauze wick removed and replaced by smaller wick.

Oct. 27. Bile appeared in stool.

Nov. 1. Bile ceased discharging from wound.

Nov. 18. Biliary fistula closed. Has had no recurrence of symptoms. Disposition much more cheerful.

Nov. 19. Operation: Ether; curettage; amputation of cervix; perineorrhaphy and Alexander's operation.

Nov. 25. Patient doing well. Temperature and pulse normal.

Since this paper was read, I have operated on 6 cases of cholecystitis, with recovery in every case.

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#### ON THE VALUE OF MODERN METHODS OF DIAGNOSIS AND TREATMENT IN GASTRO-INTESTINAL DISEASES.

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MUCH of the recent journal literature on subjects pertaining to the stomach has been of a somewhat scientific nature, of principal interest to those who are concerned in the modern methods of diagnosis and treatment of gastro-intestinal diseases. A great deal of it has perhaps been beyond the comprehension of the general physician. Very likely it has to him seemed characterized by reports of endless chemical analyses and by elaborate technical methods of examination of the stomach. As a result, I believe many physicians have come to the conclusion that these methods are practical in the laboratory only, and that the results obtained are hardly worth the time devoted to them. This belief has recently been strengthened by skeptical remarks made to me on the subject by fellow practitioners. Moreover, the adverse attitude maintained by some of the members of the medical staff of the Boston Dis-

pensary, towards the establishment of a gastro-intestinal clinic, has led me to an appreciation of the true disposition of the general physician regarding these methods at the present time. There may be other good and sufficient reasons for this disposition; I attribute it to a lack of familiarity with the subject.

Physicians as a rule have not yet become familiar with these methods, and as a natural consequence do not appreciate their value. Many very likely have not had an opportunity to learn them, and doubtless there are others who have scarcely had their attention called to them, but certainly there are some who before this should have acquainted themselves with these new and valuable methods.

It is now three years since I began the use of these newer methods, in private and dispensary practice, and I believe sufficient time has elapsed to allow a "cooling off" of any undue enthusiasm which is so liable to take possession of the novice. Therefore let me ask you not to attribute the motive of the following remarks to overenthusiasm, but rather to a desire to make more generally known some of the beneficial results which may be derived from the employment of these methods in gastric diseases.

Before further considering the newer methods let us for a moment review the older ones. By these older methods our diagnosis is made almost entirely from the subjective symptoms of the patient. If he has a pain in the epigastrium we guess it may be due to the presence of gas, not knowing whether the conditions of the gastric contents are such as to cause its formation or not. Or, if our attention is called to vomiting, nine times out of ten we cannot tell positively whether it is due to conditions associated with a dilatation of the stomach or if its origin is a neurosis. In fact, diagnosis by these older methods is scarcely more than a mere matter of guess-work. Our treatment, it must be admitted, has been mainly empirical. That we have dosed our patients with alkalies after meals when they have been suffering from a deficiency of hydrochloric acid, and that we have frequently prescribed hydrochloric acid when the patients' stomachs were being gnawed by the pains resulting from an excess of this acid, are facts which these modern methods disclose.

In fact, the revelations made by the use of these methods, I can well compare to those made by the x-rays in surgery.

But what about these newer methods? I have lately been asked if they really aid one in practical results? If they are of more than mere scientific value? My answer is that they aid one very much in the diagnosis and treatment of gastric disorders; but I must add, that thus far they have not enabled us to diagnose or cure all gastric diseases. These methods are still new, and doubtless we are not yet sufficiently familiar with them to correctly interpret all the results that they disclose. It is also very probable, judging from the present rapid advance in this line, that in the near future other tests will be instituted which will help us to

clear up many of the mysteries of gastric affection now existing.

That these methods will prove of such great value that they will be generally employed in the clinics of all of our larger hospitals and dispensaries, I do not hesitate to predict. That they will soon be taught in all of our better medical schools, I firmly believe.

From the large amount of experience necessary to their successful employment, the finer details of these methods will probably never be used by the general practitioner, but I have no doubt he will gather from the mass a sufficient number of valuable tests to enable him to more rationally treat his ordinary gastric cases and to aid him in recognizing those cases beyond his skill.

New works on this subject are constantly appearing, and to them I must refer you for the details and technique of these methods; suffice it for me to show in a small way some of the advantages which may be derived therefrom. I feel that I can best do this by briefly reporting two cases which lately came under my observation on the same day at the Boston Dispensary. How well these cases serve the following purposes I will allow you to decide: (1) They are to show that very similar subjective symptoms may be produced by entirely different gastric conditions; (2) that the employment of these newer methods is absolutely necessary in determining the true conditions of the stomach and its secretions, and in directing proper treatment.

CASE I. Oct. 22, 1901. Man, age 40, trader. Has had gastric disturbance past 10 or 12 years; the last two months it has been more severe. The chief symptom is a diffused pain in the epigastrium, sharp in character, occurring  $1\frac{1}{2}$  to 3 hours after eating, and continuing until he eats again; as a consequence, of late, he has eaten 5 to 7 meals a day. The pain frequently occurs at night. In the daytime it is so severe that it often prevents him from attending to business. Tenderness in the epigastrium accompanies the pain. The appetite is good; there has been no loss of flesh. The bowels are regular. Slight gaseous eructations usually occur 15 to 20 minutes after eating. Slight nausea precedes attacks of vomiting, which lately have occurred once a week. The sensation of a lump in the stomach is constantly present. Flatulence is considerable. There has never been hematemesis nor colic. He uses neither alcoholic liquors nor coffee, but drinks 2 cups of tea a day and smokes 4 cigars. He believes vegetables disagree with him. The breath is not offensive. The teeth are in good condition except the molars. The tongue is slightly coated. Palpation reveals no tumor and but moderate tenderness in midepigastrium; no succussion sounds elicited. Inflation and percussion gives the greater curvature at  $1\frac{1}{2}$  inches above the navel. Resonance in xiphoid-umbilical line  $5\frac{1}{2}$  inches. Stomach lung resonance extends to midaxillary line and up to fifth rib. Fasting contents for 18 hours were 80 cc., one-third of which was food particles; there was considerable

nucus and a few bloody particles. Test meal contents, 45 cc.; free HCl, .4 per M.; total acidity, 80 per C.; lactic acid, none. Lavage with sodii bicarb. was done, and an alkali before meals prescribed. A semiliquid diet was ordered, meals three a day.

Oct. 25. Reports practically no pain since last visit. Fasting contents for 15 hours, 25 cc. They contained no food particles, but considerable mucus and a little blood. Test meal contents, 12 cc.; free HCl, .2 per M.; total acidity, 26 per C. Treatment the same.

Oct. 30. Reports no pain thus far worth mentioning.

Nov. 7. Some days he has very slight pain 4 to 5 hours after eating his noon meal. Test meal contents, 30 cc.; free HCl, .1 per M.; total acidity, 50 per C. Patient considers himself practically cured, and for this reason it is difficult to induce him to continue treatment. A more liberal diet is allowed, observation to be continued.

CASE II. Oct. 22, 1901. Man, age 24, carpenter. Has had stomach trouble past 6 months. During this time he has lost 12 pounds of flesh. The chief symptom is pain in the epigastrium, diffused, dull in character, occurring 2 to 4 hours after eating and lasting until he eats again. The pain at night is not sufficient to awaken him, but in the daytime it frequently prevents him from working. Gaseous eructations are slight, there is no pyrosis. Slight nausea precedes attacks of vomiting, which have occurred several times during the past 6 months. The sensation of a lump in the stomach is constantly present. The appetite is fairly good, but on account of a feeling of fullness in the stomach, at times he does not eat his regular meals. The bowels are moderately constipated. There has never been any flatulence nor colic. No hematemesis. He knows of no particular foods that disagree with him. He drinks 3 or 4 cups of tea a day and one of coffee. Does not use alcoholic liquors nor tobacco. The breath is not offensive, teeth fairly good condition, tongue slightly coated. Palpation gives moderate tenderness in epigastrium, no tumor. Succussion sounds are elicited from the stomach after 12 hours fasting. Inflation and percussion gives the greater curvature at level of navel. Stomach lung resonance extends to midaxillary line and up to sixth rib. Resonance in xiphoid-umbilical line not recorded. Stomach contents after 12 hours fasting amounted to 130 cc., slightly turbid but without food particles or mucus; free HCl, .7 per M.; total acidity, 42 per C. One hour later test meal contents, 110 cc.; free HCl, 2.4 per M.; total acidity, 84 per C.; lactic acid, none. Lavage with silver nitrate solution, 1 per M., was done and repeated on alternate days. Antacid tablets equivalent to sodii bicarb., 10 gr., 2 to 6 after meals were ordered; also a nitrogenous diet. Cascara sagrada was given for the bowels. After 8 days' treatment the patient was obliged to leave the state. On the day of his departure he reported that he had had no pain of consequence for the past 3 days. With the aid of a

stomach tube and a supply of medicines he was to continue treatment as best he could.

The appended tables give the amounts of fasting and test meal contents, also the amounts of free HCl and total acidity for the 6 occasions on which I saw him.

Date.	Hours Fasting.	Amount.	Free HCl.	Total HCl.	Total Acidity.
Oct. 22. ....	12	130 CC.	.7 per M.	—	42 per C.
" 23. ....	16	160 "	1.3 " "	1.9	64 " "
" 24. ....	16	205 "	1.4 " "	—	60 " "
" 26. ....	15	80 "	1. " "	—	56 " "
" 28. ....	14	100 "	1. " "	—	54 " "
" 29. ....	19	95 "	1.4 " "	—	60 " "
Dec. 14. ....	12	35 "	.2 " "	—	24 " "

Date.	Test Meal Contents.	Free HCl.	Total Acidity.
Oct. 22. ....	110 CC.	2.4 per M.	84 per C.
" 23. ....	80 "	2.3 " "	64 " "
" 24. ....	70 "	2.4 " "	82 " "
" 26. ....	30 "	2.4 " "	84 " "
" 28. ....	70 "	1.9 " "	74 " "
Dec. 14. ....	40 "	1.8 " "	61 " "

NOTE.—It will be remembered that normally free HCl is present in about 1.5 to 2. per M. one hour after a test meal, and that the total acidity should be 40 to 60 per C.

Of the marked similarity of the subjective of these two cases I believe there can be no question. I also believe that ordinarily these cases would have received the same diagnosis and treatment. Yet how different are the conditions found to exist.

In Case I we have grossly (1) a low acidity, (2) a large amount of mucus, and (3) a large, but not dilated, stomach.

In Case II the most notable features are (1) a secretion of gastric juice as late as 19 hours after last meal, and with an acidity nearly as high as is usually found one hour after a test meal, (2) an acidity after test meal abnormally high, and (3) a moderately dilated stomach. How else but by these modern methods could these conditions be ascertained? And is not the knowledge of them absolutely necessary to rational treatment?

## Medical Progress.

### RECENT RESEARCH IN PHYSIOLOGICAL CHEMISTRY AND PHARMACOLOGY.

BY M. VEJUX-TYRODE, M.D., BOSTON.

Most of the following extracts are from articles published during the last six or seven months. Some were published at a slightly earlier period.

K. Hedbom<sup>1</sup> (Upsala, Sweden) performed pharmacological experiments with antiarin, the active principle of antiars. He obtained convulsions in warm-blooded animals and increase in the systolic contraction of the frog's heart. He

<sup>1</sup> Arch. f. Exp. Path. u. Pharm., April, 1901, No. 45. p. 317.

also finds a direct antidotal effect between antiarin and hydrocyanic acid on the heart of frogs.

Nebelthau,<sup>2</sup> in Konigsberg, while working on the influence of fever on diabetes, finds that acute fevers do not produce any change in the sugar metabolism of a dog made artificially diabetic by extirpation of the pancreas. He finds that tubercular infection strengthens the carbohydrate metabolism, that less sugar is excreted by the urine, other conditions being equal.

Harnack,<sup>3</sup> in Halle, quite in opposition to former views, demonstrates that manganese, both in the organic and inorganic forms, is absorbed by the intact intestinal mucosa. Excretion takes place almost wholly through the intestines. The kidneys do not excrete any, or only the slightest traces, thus differing in this respect materially from iron. After subcutaneous injections of permanganates, manganese is absorbed into the circulation and excreted by the intestinal tract and not by the kidneys.

C. Archangelsky<sup>4</sup> (Tomsk, Siberia) anesthetized animals with acetone and chloral. He made quantitative determination of these substances in their different organs and found that the brain contains notably more of these substances than the liver or blood. On account of this unequal distribution of these narcotics, he concludes that narcotics probably form chemical compounds with some portion of nervous tissues. Quite in agreement with former work, he does not find any splitting up of chloral into chloroform in the living organism.

Hans Meyer,<sup>5</sup> at Marburg, in former articles has shown a relationship between the narcotic properties of drugs of the alcohol group and their solubility in oils. He supported the theory that narcosis was the result of a solution of some element of nerve cells having a solubility similar to that of fats. In this recent article he shows that such drugs as alcohol, chloroform and acetone, at different temperatures, vary in toxicity directly with their (Theilung coefficient) affinity for fats.

Ulrici,<sup>6</sup> in Marburg, worked upon the influence of benzoic, gallic, tannic and quinic acid on the excretion of uric acid. He found that benzoic and gallic acids decrease; that quinic and tannic acids do not influence, and that salicylic acid increases the excretion of uric acid. Salicylic acid may increase the excretion of uric acid to the extent of 7%.

Gotlieb and Magnus,<sup>7</sup> in Heidelberg, have worked upon the much discussed question as to how digitalis and other members of this group bring about the rise of blood pressure observed after their administration. Schmiedeberg states that the increase in the force of contraction of the heart was sufficient to account for the observed rise of blood pressure. Brunton and his school, basing their conclusions upon oncometer experiments, maintained that the rise in blood pres-

sure following the administration of digitalis and its allies was due at least in part to contraction of the blood vessels. Gotlieb and Magnus, after having performed both oncometer experiments and experiments in which the rate of blood flow was measured, came to the following conclusions:

(1) Digitalin, strophanthin and convallamarin produce a contraction of the blood vessels in the splanchnic area with simultaneous dilatation of the other blood vessel areas.

(2) Digitoxin produces contraction of all the blood vessels.

(8) The rise in blood pressure resulting from the administration of members of the digitalis group results from the increase in the force of the heart's contraction plus a contraction of the vessels of the splanchnic area.

R. Klapp,<sup>8</sup> in Greiswald, tried to find out the influence of various conditions upon the absorption from subcutaneous tissues. The conditions which he studied were bleeding, starvation, passive congestion and elevation of the limb under study. His experiments were conducted upon dogs, and consisted in injecting a known quantity of milk sugar under the skin and thereafter examining the urine for the quantity of sugar excreted, which would vary quite constantly with the amount absorbed. He found that moderate bleeding and moderate starvation increase absorption; that severe bleeding and great starvation decrease absorption. The elevation of the limb in which the injection was given produced a great decrease in absorption. During passive congestion the absorption is decreased, but after its suspension absorption is more active than before.

Weber,<sup>9</sup> in Strassburg, investigated the pharmacology of dimethyl sulphate  $\text{CH}_3\text{CH}_2\text{SO}_4$  and compared it with that of other fatty esters. This substance produces severe local irritation at the place of application. The violent irritation of the primary air passages forms the chief element of danger while working with this substance. The author points out the fact that this body differs in its action from other similar esters in that it produces convulsions besides the coma and paralysis brought on by the other esters. He also concludes that the action of dimethyl sulphate is not dependent upon the splitting of this body into methyl alcohol and sulphuric acid, but its activity depends upon the action of the molecule as a whole.

N. V. Westewryk,<sup>10</sup> in St. Petersburg, found that the inhalation of carbonic acid in small doses decreases pathologically increased temperature in rabbits. He believes that this action of carbon dioxide may later be used in practical therapeutics.

Bergman,<sup>11</sup> in Marburg, found that phosphoric acid is not excreted by the intestinal wall of dogs even after copious administration of calcium salts, but that it regularly increases the quantity in the urine. In herbivora, such as

<sup>2</sup> Arch. f. Exp. Path. u. Pharm., 1901, Bd. xlvI, H. 5 u. 6.

<sup>3</sup> Loc. cit., 1901, Bd. xlvI.

<sup>4</sup> Loc. cit., 1901, Bd. xlvI, H. 5 u. 6.

<sup>5</sup> Loc. cit., 1901, Bd. xlvI, H. 5 u. 6.

<sup>6</sup> Loc. cit., 1901, Bd. xlvI, H. 5 u. 6.

<sup>7</sup> Loc. cit., 1901, Bd. xlvII, H. 1 u. 2.

<sup>8</sup> Arch. f. Exp. Path. u. Pharm., 1901, Bd. xlvII, H. 1 u. 2.

<sup>9</sup> Loc. cit., 1901, Bd. xlvII, H. 2.

<sup>10</sup> Loc. cit., 1901, Bd. xlvII, H. 1 u. 2.

<sup>11</sup> Loc. cit., 1901, Bd. xlvII, H. 1 u. 2.



sheep, almost all the phosphoric acid is excreted by the intestines. Phosphoric acid in organic combination is excreted as inorganic phosphorus in the urine in dogs and in the feces in sheep.

Otto Löwi,<sup>12</sup> in Marburg, performed experiments to find out the reason for the discrepancy between the results of the administration of phloridzin subcutaneously or by mouth. It was a matter of common experience that the amount of sugar excreted was very much larger when a dose similar to that given by mouth was injected under the skin. Löwi showed that this increase was not due to an increase splitting up of proteids, as the nitrogen excretion was not increased sufficiently to explain the entire increase in sugar excretion. The author found that when phloridzin was administered by mouth, a derivative of phloridzin, which is insoluble and absorbed with difficulty, was formed in the intestines. This compound could be extracted from the feces. It produces marked glycosuria when it is injected under the skin of an animal. He could not increase the glycosuria by increasing the quantity of sugar-forming material unless he simultaneously increased the dose of phloridzin. Changes in body temperature exert no influence upon the size of the phloridzin-glycosuria.

The same author<sup>13</sup> finds that camphor causes a diminution of phloridzin-glycosuria, but quite independent of the glycuronic acid excretion. He concludes that this diminished glycosuria is not due to the production of specific inflammation of the kidneys, as in the case of chromic acid and cantharides poisoning, the latter which also checks phloridzin-glycosuria, because long-continued poisoning by camphor does not proportionately decrease the excretion of sugar in phloridzin diabetes.

The same author<sup>14</sup> drew the following conclusions from another series of metabolism experiments with phloridzin:

(1) A nitrogen moiety of the proteid molecule may be retained, while a carbohydrate portion is excreted as sugar in the urine after phloridzin, or is burnt up in the body under normal conditions.

(2) The amount of nitrogen is decreased by the administration of fat during the phloridzin period, and the ratio between dextrose and nitrogen is increased. This would show that the fats cause a retention of the nitrogen, and not that sugar is formed from the fats, because the total quantity of sugar in the urine is not increased, but even diminished.

Hartogh and Schum,<sup>15</sup> in Hamburg, after somewhat similar experiments, conclude that the sugar under such conditions probably comes from the fats, although they admit the possibility of proteids as a source.

S. Weber,<sup>16</sup> in Marburg, performed metabolism experiments upon sheep, in which he produces fever by the injection of bacteria free filtrate of swine erysipelas. He concludes that during fever

an animal loses more nitrogen than is ingested, even if he be given as much proteid and nonnitrogenous food as is necessary to maintain the nitrogen equilibrium and body weight during health. If, however, an increased amount of proteids and nonnitrogenous foods are supplied, not a loss but even a deposit of proteids may take place during fever.

H. Hayashi,<sup>17</sup> in Tokio, tested the chemical reactions of tetanus-toxin prepared according to the method of Brieger and Boer. On account of its chemical reactions he concludes that tetanus toxin is probably not an albumin nor globulin, but a primary albumose.

D. Scherbatscheff,<sup>18</sup> of Moscow, while working in Schmiedeberg's laboratory, compared the toxicity of ethyl bromide ( $C_2H_5Br$ ) and ethylene bromide ( $C_2H_4Br_2$ ). He was led to this research by the occurrence of fatal cases of poisoning which resulted from the administration of ethylene bromide, accidentally substituted for ethyl bromide. Unlike ethyl bromide, ethylene bromide does not produce narcosis in warm-blooded animals. It produces nausea and vomiting, turbidity of the cornea, and death from collapse usually some hours after its administration. The respirations are hurried and superficial. The blood pressure is greatly diminished. On pathological examination hepatization of the lungs and hyperemia of the other internal organs is found. Death probably results from local irritation of the lungs plus paralysis of the heart. That these symptoms are due to liberated hydrobromic acid cannot be maintained, since the alkalinity of the blood is not diminished.

W. Butkewitsk,<sup>19</sup> in Zurich, described a proteolytic ferment occurring in the plants lupinus and ricinus. This ferment acts weakly in .1% alkali solution or in .2% hydrochloric acid solution, but very energetically in .1% hydrocyanic acid, and even much more powerfully in 1% solution of the same. The products of this digestion were albumose and peptone, the amido acids, leucin and tyrosin and xanthin bases.

A. A. Noyes<sup>20</sup> of the Institute of Technology in Boston does not find the same beneficial action of hydrocyanic acid towards inorganic catalytic agents. He showed that the activity of such catalytic agents as colloidal platinum is arrested by very minute doses of hydrocyanic acids and other strong poisons.

D. Laurow,<sup>21</sup> in Königsberg, showed that antipyrin is excreted in good part as oxyantipyrin-glycuronate by the urine. In short, antipyrin first undergoes oxidation in the body, then combines with glycuronic acid, as do a large number of other bodies, such as camphor and phénols.

Laborde,<sup>22</sup> in Paris, finds a decrease in the excretion of phosphorus in tuberculous guinea pigs during the administration of lecithin. He also

<sup>12</sup> Arch. f. Exp. Path. u. Pharm., 1901, Bd. xlvii, H. 1 u. 2.

<sup>13</sup> Loc. cit., Bd. xlvii.

<sup>14</sup> Loc. cit., Bd. xlvii.

<sup>15</sup> Loc. cit., 1901, Bd. xlv, p. 11.

<sup>16</sup> Loc. cit., Bd. xlvii.

<sup>17</sup> Arch. f. Exp. Path. u. Pharm., 1901, Bd. xlvii, H. 1 u. 2.

<sup>18</sup> Loc. cit., 1901, Bd. xlvii, H. 1 u. 2.

<sup>19</sup> Zeitschr. f. Physiol. Chem., Bd. xxxii.

<sup>20</sup> Report of American Chemical Society, 1901.

<sup>21</sup> Zeitschr. f. Physiol. Chem., Bd. xxxii, S. III, p. 120.

<sup>22</sup> Comptes Rendu de l'Acad. des Science, 1901.



states that lecithin produces amelioration in the tuberculosis of human subjects.

D. Kurajeff<sup>22</sup> of St. Petersburg isolated a protamin from the spermatozoa of *accipensei stellatus* which differs slightly in composition from that obtained from the spermatozoa of the salmon and sturgeon.

M. Krüger and J. Schmidt,<sup>24</sup> in Breslau, agree with Albanese that caffeine and theobromin increase the quantity of some of the purin bases in the urine after their administration. They find no increase in uric acid, but find that at least 47% of the theobromin administered reappears as xanthin or purin bases in the urine.

Ivar Bang,<sup>25</sup> in Upsala, found that guanylic acid decreases the coagulability of the blood even after the injection of small doses. Guanylic acid produces restlessness, hurried respiration, and finally narcosis with almost no response to external stimuli. The urine contains 78% sugar, but no acetone nor oxybutyric acid. The blood pressure is decreased almost 100%. Nucleo proteids produce symptoms much resembling those just described.

Jacque Loeb,<sup>26</sup> in Chicago, studied the influences affecting artificial parthenogenesis of sea-urchin's eggs. He believes that the development of the ovum can be brought about without impregnation by spermatozoa if it be placed in a solution containing a certain definite quantity of the ions of some of the alkali metals and earths. The author thinks that the salts in the body act in their dissociated condition and therefore the action varies with the active ions.

P. A. Levene,<sup>27</sup> in New York, analyzed the nucleic acid in tubercle bacilli cultivated under different conditions. He found considerable variation in its composition and in the quantity found in different tubercle bacteria.

Otto Cohnhein<sup>28</sup> found that the products of digestion, albumoses and peptons are not, as was formerly thought, converted back to native albumin, but are converted into crystalline substances. He believes that this change is brought about through the action of a ferment which he calls erypsin.

Koranyi<sup>29</sup> recently examined the urine and blood with a view of determining its molecular concentration under different conditions of health and disease. This was done first by Rossman some 20 years ago. The method used is the common method used to determine molecular weight of substances according to the lowering of their freezing point. He advocated that this method could be used clinically to determine the functional activity of a kidney. The freezing point method does not give us exactly the same data as the specific gravity. The reason is that the freezing point is effected by the number of molecules regardless of the nature of the substance, while

the specific gravity is very differently affected by the same quantity of different substances.

Kiss<sup>30</sup> disputes many of Koranyi's assumptions, which are, however, refuted by the latter.

Kummel, after having tried this method clinically, attaches a certain value to it for determining the efficiency of a kidney before removing the other.

Bier's<sup>31</sup> cocainization of the spinal cord has been extensively tried in Europe during the past year. Some advocate its use, others discourage it. All authors who have used this method report severe untoward effect occurring in many cases. These consist in nausea, vomiting, delirium, hallucinations and collapse.

The mortality from cocainization of the cord certainly does not compare favorably with etherization. Besides the danger from the cocain this method possesses the objection of leaving the patient completely conscious during an operation. This certainly adds greatly to the shock of the operation.

## Reports of Societies.

### MEDICAL SOCIETY OF THE STATE OF NEW YORK.

NINETY-SIXTH ANNUAL MEETING HELD IN ALBANY, N. Y., JAN. 28, 29 AND 30, 1902, HENRY L. ELSNER, M.D., OF SYRACUSE, PRESIDENT.

(Concluded from No. 7, p. 177.)

#### FIRST DAY.

#### THE CIVILIZED INDIAN: HIS PHYSICAL CHARACTERISTICS AND SOME OF HIS DISEASES.

DR. A. D. LAKE of Gowanda presented in this paper the results of observation of the Iroquois Indians, about 1,800 of whom occupy the Cattaraugus reservation. He first described their perfect physique when in the savage state, and sharply contrasted it with their present sensitiveness to changes of temperature, their inability to do hard labor and their liability to disease. Many of them do not reach the age of puberty, particularly the women, and all are very susceptible to tuberculosis. Pneumonia is very fatal among them, and if they weather the attack they are prone to succumb later to tuberculosis. A very interesting observation was regarding their present apparent immunity to syphilis, though there were abundant opportunities for the spread of venereal infection, and there were evidences of the former ravages of syphilis. Another way in which civilization had left its mark on the health of these Indians was in the increase of the diseases peculiar to women.

<sup>22</sup> Zeitschr. f. Physiol. Chem., Strassb., 1901, xxxii, 197-200.

<sup>24</sup> Zeitschr. f. Physiol. Chem., Bd. xxvii, p. 104-110.

<sup>25</sup> Zeitschr. f. Physiol. Chem., Bd. xlii.

<sup>26</sup> American Journal Physiology, 1901.

<sup>27</sup> Proceedings American Physiological Society, December, 1900.

<sup>28</sup> Zeitschr. f. Physiol. Chem., Bd. xxxiii.

<sup>29</sup> Zeitschr. f. klin. Med. Bd. xxxiii; Ibid., Berl. klin. Woch., 1901, Bd. xlviii.

<sup>30</sup> Berl. klin. Woch., Bd. xlvii.

<sup>31</sup> Centrbl. f. d. Med. Wissensch., No. 49; Arch. f. klin. Chir., Bd. lxi; Centrbl. f. d. Grenzgeb. d. Med. u. Chir., Bd. iv; Centrbl. f. d. Grenzgeb. d. Med. u. Chir., Bd. iv, No. 19, p. 756 (Falsans); Centrbl. f. Chir., 1901, No. 45, p. 103, Tédeprade, A.; Centrbl. f. Grenzgeb. d. Med. u. Chir., Bd. iv, No. 19, p. 751 (Tuffier); Centrbl. f. d. Grenzgeb. d. Med. u. Chir., Bd. iv, No. 19, p. 752 (Tuffier) Th.

## SYMPOSIUM ON PARESIS; ETIOLOGY.

DR. ARTHUR W. HURD of Buffalo opened the symposium with a paper on the etiology. He carefully analyzed statistics from various sources, and showed that syphilis was ten times more frequent in paresis than in other forms of insanity, and that in places and among persons in whom syphilis is rare paresis is also rare. It was probable that the increased mental strain of modern life explained the fact that paresis was on the increase. Traumatism and mental strain were, perhaps, in a small percentage of cases, the chief etiological factors.

## EARLY DIAGNOSIS.

DR. FRANCIS X. DERCUM of Philadelphia read this paper. He pointed out the distinguishing signs and symptoms between paresis in the neurasthenoid stage and neurasthenia. He said that the symptoms of the neurasthenic were almost wholly subjective, the patient delighted in recounting them, and was prompt to seek medical advice. The paretic, on the other hand, rarely came to the physician of his own accord, but was brought by his relatives or friends, and then he allowed them to describe his symptoms and supposed variations from the normal. Moreover, the neurasthenic was usually worse in the morning, and best at the close of the day, while the paretic often became somnolent toward night, and exhibited then peculiarities of speech, mentality and conduct which were not noticeable in the morning. The most characteristic objective symptom in the paretic was his manner, as shown by very slight changes in expression and gesture, indicative of his not being in close touch with his surroundings.

## COMPARATIVE FREQUENCY.

DR. CHARLES G. WAGNER of Binghamton took up this part of the subject. He said that while paresis had been recognized about 80 years, according to Dr. Bell, of the McLean Asylum, he had not observed it in this country before 1840, though familiar with it abroad. During the last half of the nineteenth century 18,843 insane persons had been admitted to the Utica State Hospital, of whom 865, or 4.5%, were cases of paresis. Of the 49,787 persons in all of the State hospitals, 3,307, or 6.6%, were paretics. According to the records of the Manhattan State Hospital the average duration of the disease was a little less than 16 months. In the same hospital there was a great preponderance of native Americans affected with paresis, though more than two-thirds of the inmates were of foreign birth. It was fair to assume that paresis constitutes nearly 9 % of all cases of insanity, and that it occurs chiefly between the ages of 20 and 60.

## TREATMENT OF PARESIS; ITS LIMITATIONS AND EXPECTATIONS.

DR. EDWARD COWLES of Boston, Mass., presented the closing paper. He said that the limi-

tations of treatment must be evident from the fact that we have no rational basis for our therapeutic efforts. Tonics and hydrotherapy were useful; the diet should be generous and alcohol should be interdicted. According to the modern conception, paresis was probably a grave nutritional disorder of the nature of a toxemia.

## SECOND DAY.

## THE PRIZE ESSAY.

The committee on prize essay awarded the prize to DR. LUCIEN HOWE of Buffalo, the author of the essay entitled "A Study of the Connective Tissue of the Orbit by a New Method."

## RINGWORM; A NOTE ON ITS TREATMENT.

DR. GEORGE THOMAS JACKSON of New York presented this very brief paper. He said that sulphur, iodine, salicylic acid or mercury, in ointment or alone, would readily cure ringworm of the nonhairy parts of the body. Cases of ringworm of the scalp were, however, by no means so amenable to treatment, and ringworm of the beard, though somewhat better in this respect, often resisted the most approved methods of treatment for 6 months or more. An ointment of 1 dr. of crystalline iodine to 1 oz. of goose grease he had found a most effective remedy for ringworm. It could be applied twice a day until there is a little swelling of the patches, and then once a day until cured. The first applications were apt to be slightly painful for a few minutes. No epilation was necessary. It was important that care be taken to obtain the genuine goose grease. It might occasionally be necessary to make use, instead, of an ointment composed of  $\frac{1}{2}$  dr. of croton oil to 1 oz. of sulphur ointment.

DR. H. C. BAUM of Syracuse said that he had heard of this treatment for ringworm, and from an experience with it extending over several years he could confirm what had been said in the paper concerning its efficiency.

## A CASE OF EPILEPSY WITH POSSIBLE MEDICO-LEGAL COMPLICATIONS.

DR. FREDERICK SEFTON of Auburn reported this case: The patient had developed after having been very roughly handled by a lot of college boys, who were initiating him into a secret society. After the ceremony he was taken to his home unconscious, but he was soon apparently himself again, and nothing wrong was noticed for some months. He then became irritable and morose, and suddenly one evening shot at his sister. He was followed for some distance and was found in collapse. That night's doings ever remained a blank in his memory. He finally became a ship's purser, and has since continued to fill this position and has not had any more convulsions. The case was reported to show how easy it would have been, in the event of his having killed his sister, for testimony to be secured regarding his responsibility for his acts. This could hardly occur under a different mode

of procedure by which medical expert testimony partook less of an *ex parte* character.

DR. WILLIAM BROWNING of Brooklyn said that when fright was the real cause of epilepsy the disease almost invariably made itself known within a few hours or days; moreover, in these cases of psychic epilepsy the patient would rarely do violence to others except when interfered with.

#### THE CHANGES OF THE LEUCOCYTES IN DISEASE AS AN AID TO DIAGNOSIS AND PROGNOSIS.

DR. THOMAS R. BROWN of Baltimore presented this paper. He said that as a physiological leucocytosis occurred during digestion, the leucocyte count should never be made on blood obtained during digestion, but when the person was fasting. Leucocytosis in typhoid pointed to some complication, quite probably a perforation. A high percentage of myelocytes in diphtheria was considered by some authorities as a very bad sign. The absence of leucocytosis in an uncomplicated tuberculosis served to differentiate it from certain other diseases, while its presence indicated a secondary infection. It was known now that a marked leucocytosis was sometimes present after the ingestion of large doses of the coal-tar products, and there was some reason for believing that by this method it might be possible in the future to detect the presence of secret drug habits. In no other surgical disease was the leucocyte count probably of so much aid to the surgeon as in appendicitis, and it might be the only means, in some cases, of diagnosing the fulminating form.

#### AN UNUSUAL CASE OF ABSCESS OF THE LIVER.

DR. EDGAR A. VANDERVEER of Albany reported this case. The patient was a soldier who had contracted dysentery in the Philippines, at a time when others in his command were sick in the same way. He stated that one-fourth of these men developed abscess of the liver. The patient continued to be troubled with dysentery, and long after the first attack found his way to the Albany County Hospital. There abscess of the liver was suspected from the fever and the physical signs, and puncture brought away  $3\frac{1}{2}$  pints of a chocolate-colored pus. The rib was resected and 1,000 cc. more of this pus was evacuated. No distinct micro-organisms could be found in this pus. The man improved after the operation was performed, but subsequently had a very severe attack of dysentery.

#### GUNSHOT WOUNDS OF THE LIVER WITH REPORT OF A CASE.

DR. E. W. MULLIGAN of Rochester reported the case of a young Italian man who shot himself in the liver, the revolver being held almost in contact with the abdomen. He was operated upon  $6\frac{1}{2}$  hours later, and the wound of entrance found to be clean. The wound of exit, however, was large, ragged and was bleeding freely. The hemorrhage was checked by packing in a large quan-

tity of gauze. The patient was out of the hospital in about a month.

#### COMPLETE HERNIA OF THE BLADDER.

DR. JOHN B. HARVIE of Troy reported a case of complete hernia of the bladder, complicating a strangulated hernia for which resection of the bowel was required.

DR. R. H. M. DAWBARN of New York was disposed to be skeptical regarding the entire bladder having become prolapsed, not only because of the comparative immobility of the prostatic portion, but because in a somewhat similar case, occurring in his hospital service, he had at first supposed that the whole organ was prolapsed, because of the size of the sac, but by rectal examination and careful exploration it was found that what was thought to be the bladder was a large diverticulum.

#### PRESIDENT'S ADDRESS: THE VALUE TO THE PHYSICIAN OF MODERN METHODS OF DIAGNOSIS.

DR. HENRY L. ELSNER of Syracuse delivered this address.

#### A NEW SYMPTOM IN THE DIAGNOSIS OF DYSTOCIA DUE TO A SHORT CORD.

DR. SAMUEL M. BRICKNER of New York was the author of this paper. He reported two cases in which the new symptom was present, that is, urination at the close of each pain during the second stage. The rationale was that as the head recedes markedly, and with a jerk, with the cessation of each pain, the pressure which is usually continuous on the urethra and bladder during the second stage, is relaxed, and consequently the urine is free to escape. Ten inches was the shortest umbilical cord that would ordinarily allow of delivery without some complication, such as rupture of the cord. It should be noted that there was not a desire to pass urine, but simply that the urine escaped by reflex action.

#### SYMPOSIUM ON DISEASES OF THE PANCREAS: PHYSIOLOGY.

PROF. R. H. CHITTENDEN of New Haven, Conn., opened the symposium with a paper on the physiology of pancreatic diseases. He said that the secretion of the pancreatic juice was undoubtedly controlled by true secretory fibres, and that the latter were contained in both the vagus and the sympathetic. Experiments on pancreatic diabetes indicated that certain specialized cells in the pancreas probably elaborated an internal secretion, which exerted an influence on the metabolism of the body. The blood of an animal from whom the pancreas had been removed did not exhibit any toxicity, and did not cause diabetes if injected into another animal. There was reason to believe that some forms of so-called pancreatic diabetes were the result of a physiological disturbance of the interrelation of several allied glands or structures. In common with physiological chemists generally, Professor Chittenden was disposed to look with favor upon the auto-intoxication theory of diabetes.

## DIAGNOSIS OF DISEASES OF THE PANCREAS.

DR. W. S. THAYER of Baltimore took up this part of the subject. He said that acute pancreatitis was apt to occur in corpulent persons in middle life. It was ushered in with agonizing epigastric pain and rigidity and tenderness of the abdomen, accelerated pulse; sometimes by cyanosis, and by rapidly increasing prostration. Collapse and death often occurred in four or five days. Sometimes the early symptoms were similar to those of gallstone colic. There might be an increase of fat in the stools, while interference with the digestion of albuminoids was suggestive of pancreatic disease. It had been asserted that the presence of a fat-splitting ferment could be detected in the urine. If this sign should prove of practical utility it would certainly be a valuable addition to our means of diagnosing pancreatitis. The largest tumors of the pancreas were proliferating glandular cystomata. The smaller retention cysts were not sufficiently large to be detected by palpation. Cysts of the pancreas were to be differentiated from cysts of the kidney, hydatid cysts of the liver and spleen, retroperitoneal sarcomata, and large abdominal aneurisms. Malignant disease of the pancreas was usually secondary, and the growth was rarely large enough to allow of detection by palpation.

## SURGERY OF THE PANCREAS.

DR. ROSWELL PARK of Buffalo said that the usual routes for reaching the pancreas were: (1) Through the gastrohepatic omentum above the stomach; (2) through the gastrocolic omentum below the stomach; (3) from the loin behind the peritoneum, and (4) through the liver by the use of the thermocautery. In acute traumatism the indications were to stop the bleeding, prevent the escape of the juice, disinfect the cavity and repair the injury. The pancreas was ordinarily attacked in front through the gastrocolic omentum, and in most cases posterior drainage would be required. There was some mysterious connection between pancreatic disease and hemorrhage, and the tendency to bleeding was enhanced by coexistence of jaundice. The treatment of acute pancreatitis was practically that of peritonitis of the upper abdominal cavity, and consisted, for the most part, in the prompt establishment of free drainage. If the pancreas were necrotic, the necrosed portion should be removed. It was most important in cases of pancreatic disease requiring surgical intervention to operate early.

## PATHOLOGY.

DR. GEORGE BLUMER of Albany said that it was now known that, in many cases of diabetes, the pancreas appeared normal except for a hyaline degeneration of the islands of Langerhans. Pancreatitis had been produced experimentally by the introduction of irritants into the duct. Attempts to produce fat necrosis by means of bacteria or their products had almost invariably been unsuccessful, and it was now believed that the true cause of fat

necrosis was the presence of the fat-splitting ferment, steapsin. Any pancreatic lesion which allowed of the escape of this ferment might cause fat necrosis.

## CLINICAL INDICATIONS FOR SURGICAL INTERFERENCE IN ACUTE PANCREATITIS.

DR. JOSEPH C. BLOODGOOD of Baltimore read this paper. He said that most authorities agreed that in the first stage, before abscess formation, operative interference was contra-indicated. The occurrence of abscess should be recognized early, if possible, and operation at once undertaken, for the number of successes was proportional to the promptness with which incision and drainage were resorted to. Unfortunately the symptoms were neither urgent nor characteristic, and operation had often been done under the belief that the case was one of intestinal obstruction. The author had collected and studied 96 cases of acute pancreatitis, and concluded that it was possible for recovery from acute pancreatitis to take place without operation. In 23 out of 39 cases of pancreatic abscess the symptoms had been acute, and had been those of ordinary acute pancreatitis. Six out of 24 operative cases recovered, while in 21 cases of acute hemorrhagic pancreatitis death occurred without operation.

## THE TRAUMATISMS OF PREGNANCY.

DR. DENSLOW LEWIS of Chicago presented in this paper an account of some wonderful injuries to pregnant women as well as some remarkable recoveries from the same. In one case a wooden spit, 12 inches long, had remained in the uterus for 2 years; in others, glass rods, laminaria tents and various other foreign bodies had found their way into the abdominal cavity in connection with attempts to induce abortion. One woman thrust a knitting needle and another a hairpin through the navel in a desperate effort to bring on an abortion. Both mothers recovered. Cases were described in which women had inflicted terrible injuries upon themselves in an effort to perform upon themselves a Cesarean section.

## TENDON TRANSPLANTATION IN THE TREATMENT OF PARALYTIC DEFORMITIES.

DR. ARTHUR W. ELTING of Albany presented in this paper a résumé of the work already done in this comparatively new field. He said that tendon transplantation was specially adapted to the following conditions: (1) Traumatic loss of muscles and tendons; (2) spinal, infantile paralysis; (3) spastic paralysis, Little's disease and hemiplegia, and (4) congenital deformities, especially club foot. Of course this operation should not be attempted so long as there was evidence of spontaneous improvement. The simplest method of transplantation was done by dividing the tendon of a healthy muscle and suturing to the tendon of the paralyzed muscle, preferably by the method of suture described by Dr. Goldthwait.

# PNEUMOGALACTOCELE OF THE BREAST WITH AN UNIDENTIFIED ORGANISM.

DR. J. MILTON MABBOTT of New York reported this case, occurring in a primipara, into whose breasts a saline infusion had been made immediately after delivery because of a sudden collapse under chloroform. A suppurative mastitis developed on the left side and was treated by incision. At the end of the third week the right breast was found to be the seat of a tumor, measuring 4 by 2 inches, containing gas and a milky fluid. The gas was withdrawn for examination, but the quantity was not sufficient for an analysis. The gas did not reaccumulate, though according to all who saw the case this gas had originally been generated within the tumor. The creamy fluid contents were examined bacteriologically, and by animal inoculations, so long as the material was available. A micro-organism was discovered, and while it could not be identified it was apparently unimportant and nonpathogenic. The galactocoele was quickly cured by incision, irrigation and packing.

## A SIMPLE METHOD FOR DETERMINING THE PERCENTAGE OF MILK IN HOME MODIFICATIONS.

DR. ROWLAND G. FREEMAN of New York described in this paper a method which, without algebraic formulæ, would enable the physician to readily calculate the desired modifications of milk. Before making any calculations, one should decide upon the formula to be used, and then note the number of feedings, the quantity for each feeding, and the proportion between the fats and proteids. Having done this, a cream should be chosen having this same proportion, in order to facilitate the calculation. Ordinary gravity cream contained roughly 16% of fat. Two parts of gravity cream and one part of milk, containing 4% of fat, yield a cream containing 12% of fat. Taking, for example, the formula: Fat 3, sugar 6, proteids 1, the proportion between the proteids and fats is seen to be 1 to 3, and therefore a 12% cream is used, and the required quantity of water added. Dr. Freeman does away with the usual standard solution of sugar, and instead calculates the quantity of sugar needed for the 24 hours' supply, and orders this quantity put up in packages by the druggist.

## PUERPERAL HEMORRHAGE.

DR. GEORGE SEYMOUR of Utica discussed in this paper both ante-partum and post-partum hemorrhage. Among the causes of the former were mentioned excessive sexual intercourse, criminal or accidental abortions, ectopic pregnancy, hematomata, and placenta previa. Speaking of the treatment of placenta previa, Dr. Seymour said that as the child was commonly lost in these cases by the performance of podalic version, it had been recently advised to treat placenta previa by Cæsarean section. He thought this an admirable suggestion if it could be shown that it was as safe

for the mother as podalic version, for then there would be a good chance of saving the child also.

## THIRD DAY.

### A UNIQUE CASE OF DOUBLE DACRYO-ADENITIS.

DR. D. H. WIESNER of New York, reported this case. Although the usual treatment advised was hot fomentations, the author made use of continuous applications of ice cloths, and the case made a prompt recovery without suppuration of the glands.

### THE TREATMENT OF PNEUMONIA.

DR. REYNOLD W. WILCOX of New York presented a brief paper on the antiseptic treatment of pneumonia. He said that many seemed to lose sight of the fact that, while salicylic acid is an antiseptic, the salicylates are not. His own belief was that we now possessed in the creosote treatment, or some allied method, a means of effectually combating the toxemia, and of reducing the mortality from pneumonia in private practice to only 3 or 4%.

### OBESITY OF ADOLESCENCE.

DR. HEINRICH STERN of New York read this paper. He divided this form of obesity into two varieties, one disappearing at the approach of maturity—the transitory or specific variety—and the other continuing after the person had reached full development—the metabolic form. The metabolic was more frequent in boys and the transitory in girls. The transitory obesity of adolescence was caused by certain anomalies occurring at puberty only, as well as at the menopause or after castration in both sexes. The catabolic disorders were caused by faulty thyroid or parathyroid activity. Neither form of juvenile obesity should be treated unless decidedly excessive or associated with complications. In the advanced cases of metabolic obesity the treatment should be mainly dietetic. Thyroid medication and physical culture were capable of doing much good in the transitory obesity of adolescence.

### OBSERVATIONS ON BROKEN NECKS.

DR. REGINALD H. SAYRE of New York presented a communication on this subject, illustrated by a series of photographs from cases of fracture of the cervical vertebræ. Attention was directed to the fact that when the fracture involves the three upper vertebræ the head is often held in the position of torticollis. In some cases there was an abnormal straightness of the back of the neck. Referring to the treatment, Dr. Sayre said that he had found it necessary to make use of supporting dressings or apparatus for a much longer time than was generally supposed to be necessary. The retentive dressing which he preferred was made of plaster-of-Paris, and at first combined a helmet with a jacket.

#### NOMINATIONS TO THE STATE BOARD OF MEDICAL EXAMINERS.

Dr. A. Walter Suiter of Herkimer and Dr. George R. Fowler of Brooklyn were nominated to the vacancies for the current year, with Dr. James Spencer of Watertown and Dr. Henry A. Fairbairn of Brooklyn as alternates.

#### OFFICERS ELECTED.

President, Dr. Henry R. Hopkins of Buffalo; Vice-President, Dr. William A. Moore of Binghamton; Secretary, Dr. F. C. Curtis of Albany; Treasurer, Dr. O. D. Ball of Albany.

### Recent Literature.

*Surgical Experiences in South Africa, 1899-1900.* Being Mainly a Clinical Study of the Nature and Effects of Injuries Produced by Bullets of Small Calibre. By GEORGE HENRY MAKINS, F.R.C.S. Octavo; 493 pages, 25 plates and 96 other illustrations. Philadelphia: P. Blakiston's Son & Co. 1901.

This book is another contribution to our rapidly increasing knowledge of the effects of modern small calibre rifles, and for which recent warfare in Cuba, China and South Africa have furnished long-sought opportunities.

The writer, during his nine months of active service on the fighting line in "Field," "Stationary" and "Base" hospitals in Cape Colony, Natal, Orange Free State and the Transvaal, has indeed had military experience which should enable him to write intelligently on this subject. He has written a valuable and at the same time interesting book.

The introductory chapter contains a résumé of his service; when and how his time was spent; a description of his outfit, the physical conditions under which he worked as regards climate, water supply, etc.; means of transportation, ambulance service and hospitals.

Next are described modern military rifles and their projectiles. Then the character of the resulting wounds is discussed, also results in general. Following this, special injuries are considered in the following order: Blood vessels; bones of the limbs; joints; head and neck, vertebral column and spinal cord; peripheral nerves; chest; abdomen, including the external genitals and urethra. The concluding chapter deals with the character and effect of shell wounds.

The arrangement adopted has been to describe the special injury under consideration; state its manner of production, its special characteristics, the process of repair and clinical symptoms, the complications and sequelæ, prognosis and treatment. These descriptions are made more striking and graphic by the citation of actual cases and the abundant well-chosen illustrations. These

illustrative cases are often quite instructive, while the plates and cuts corroborate very effectively the statements of the writer.

The success in the abdominal surgery of civil practice has led military surgeons to hope for equal results. The observations and conclusions of Mr. Makins are important contributions to this subject and attract especial attention.

The book is concisely written. It is a summary of the latest experiences in military surgery written by a careful observer from data acquired by actual experience. It is not a compilation of the observations of others. It apparently presents facts, not theories. By those interested in military surgery it will be read with attention. A comparison of it with Stevenson's<sup>1</sup> "Wounds in War" (Edit. 1898), written before the recent campaigns, and necessarily more or less theoretical (since its data were collected mainly from experimental work with small calibre arms), shows how preconceived ideas correspond with actual experience, and is an interesting as well as very instructive task.

*A Textbook of Obstetrics.* By BARTON COOK HIRST, M.D., Professor of Obstetrics in the University of Pennsylvania. Third edition, revised and enlarged. Royal octavo; 873 pages, with 704 illustrations, many of them in colors. Philadelphia and London: W. B. Saunders & Co. 1901.

The appearance of the third edition of Hirst's textbook shows the popularity which it has enjoyed since its first appearance in 1898. It has probably been the most widely read and best selling book on obstetrics published in America in recent years. The book has not been materially changed from its original form, but it has been somewhat improved by the insertion of new matter and by over fifty new illustrations without largely increasing the size of the volume. It is interesting to note the author's position with respect to certain forms of obstetric treatment which have been under discussion more or less during the last few years. For example: The author says it is a moot question whether a torn cervix should always be immediately repaired, but his opinion is that in general practice the attempt had better not be made.

With respect to the prevention of puerperal sepsis, limitation of the number of vaginal examinations is advised, but nothing is said about the use of rubber gloves, a custom fast gaining adherents, and one which we hope to see universally adopted. Nothing is said with respect to the advisability of ante- and post-partum douches in labor.

The author still advises the use of five per cent carbolized vaseline as a lubricant for the examining hand. He lays due stress upon the practice of abdominal palpation in the conduct of labor, and at the same time he advises the avoidance of frequent vaginal examinations, emphasizing the

<sup>1</sup> Surgeon-Colonel British Army Medical Staff; Professor Military Surgery, Army Medical School, Netley.

fact that but two or three examinations need be made during the whole course of labor. He would curette and disinfect the uterus thoroughly in all puerperal sepsis. He has abandoned the use of antistreptococcus serum. He says there cannot be any doubt as to the necessity of hysterectomy in some cases of septicemia.

Nothing is said in relation to the treatment of placenta previa by Cæsarean section; possibly the author does not consider this proposition worthy of serious consideration. With respect to Cæsarean section, he says the most favorable time of its performance is about two weeks before term. There would seem to be no good reason for thus anticipating the time for delivery, and we believe it has been fully demonstrated that section at term is perfectly feasible and satisfactory and that the extra two weeks in utero is a valuable aid to the child.

Aside from a few minor points of criticism, such as the above, we heartily commend the book as one of the best on obstetrics in the English language.

*Electricity in Medicine and Surgery, including the X-ray.* By WILLIAM HARVEY KING, M.D., with a section on Electrophysiology, by W. Y. COWL, M.D., and a section on the Bottini Operation by ALBERT FREUDENBERG, M.D. Pp. 501, with 8 plates and 118 illustrations; 8vo. New York: Boericke & Runyon Co. 1901.

Within the last few years the use of electrical currents for the diagnosis and treatment of disease has become so varied that the older treatises, based almost wholly upon the uses of electricity in diseases of the nervous system, have become quite inadequate. The Röntgen ray, the galvanocautery and the electric light have already established themselves as necessities in the armamentarium of the surgeon, the specialist and even the general practitioner. The modern textbook on electricity and electrotherapeutics must, therefore, deal with all the various applications of the electric current, which is the aim of the present volume. The opening chapter on electrophysics is somewhat unequal in merit. The account of static electricity is clear and concise, but the discussion of the galvanic and faradic currents is less satisfactory. The section on therapeutics is quite complete, although somewhat optimistic. The dosage in applications of galvanism to the spine, as given by the writer, seems larger than the average patient can stand. In many cases he advises currents of 20 to 25 milliamperes with large electrodes. His measurements must be made with an inaccurate galvanometer, for few patients can endure over 10 milliamperes, and many even less. The work is marred by many typographical errors.

*The Diagnosis of Nervous and Mental Diseases.* By HOWELL T. PERSHING, M.Sc., M.D. Pp. 223, with 29 illustrations; 8vo. Philadelphia: P. Blakiston's Son & Co. 1901.

In this little manual the writer has tried to condense the whole scheme of examination into the

first 60 pages, and has met with fair success in his aim. The examination of the motor functions might have been expanded to advantage, and the paragraphs on the examination of the mental function are quite inadequate. It is to be regretted that the writer holds so strongly to the old distinction between organic and functional disease as of fundamental importance, and dwells at such length upon the importance of the symptoms which differentiate them. Over 100 pages are taken up by diagnostic tables, which the beginner will find useful. Insufficient weight is laid upon disturbances of sensation in them. The final section on the diagnosis of mental disturbances is less satisfactory, especially as the writer has followed an obsolete classification of mental diseases. Nevertheless, the book will prove of service to the student.

*A Manual of the Practice of Medicine.* By GEORGE ROE LOCKWOOD, M.D., Professor of Practice in the Woman's Medical College of the New York Infirmary. Second edition, revised and enlarged. Octavo volume of 847 pages, with 79 illustrations and 20 full-page plates. Philadelphia and London: W. B. Saunders & Co. 1901.

This work presents the essential facts and principles of the practice of medicine in a concise and available form. The book has been subjected to a thorough revision. Many portions have been rewritten and a number of new subjects have been introduced. Among the new sections may be mentioned Bubonic Plague, Gastropnoia, Gastric Analysis and Reichmann's Disease. The subject of Malaria has been entirely rewritten. The section on Diseases of the Digestive System has also been largely rewritten.

This book is admittedly based on Osler's classification of disease, as presented in his "Practice of Medicine." This detracts in a measure from the originality of the work as a whole, which may, however, be regarded as a merit rather than a defect. The descriptions of disease are succinct and at times too brief to be of value. This is particularly true of the section on Diseases of the Nervous System. In this section also it would aid the student if the special diseases were prefaced by a general introduction on the elements of neurological diagnosis and modern theories. Without this, much of what follows will remain an enigma to the average student and so-called general practitioner. The book is admirably printed, profusely and exceedingly well illustrated, but in its published form is as bulky a volume as many of its more comprehensive companions.

THE Philadelphia Board of Health has decided to supply milk dealers, who serve milk to houses in which smallpox exists, with quart and pint tin cans, distinguished by a yellow ring. The quarantine officer at each house will receive the can from the milkman, and empty its contents into a pitcher belonging to the quarantined family.—*Medical Record.*



THE BOSTON  
**Medical and Surgical Journal.**

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THE CONTROL OF VENEREAL DISEASE.

As described in detail in our issue of last week New York City is making a determined effort to meet the problem of venereal disease and prostitution in a practical way. The so-called Committee of Fifteen, appointed for that purpose, has recently put into book form the results of its laborious investigations on the extent and results of venereal disease. The title of this volume is: "The Social Evil, with Special Reference to the Conditions Existing in the City of New York." It deals with the facts in a perfectly candid and unsentimental manner, and makes many suggestions which appeal to the practical man, as capable of establishing at least the beginnings of reform. So far as we know there has never been a time in America when the unpleasant facts of prostitution have been so freely and openly discussed as just now in New York. Under the thinly veiled pseudonym of the "Social Evil," venereal disease and the consequences to which it inevitably leads have been made the subject of campaign speeches and newspaper articles to a degree calculated to bring home to the most indifferent certain definite phases of vice. The awakening of the popular conscience has undoubtedly had a most salutary effect, and we may look upon this recently published book, to which allusion has been made above, as the expression of this public opinion. The committee which has had the matter primarily in charge has apparently not fallen into the error of framing an impossible scheme of reform. It frankly admits the evil, and the necessity under existing conditions for its continuance in some form; the plan outlined, therefore, is not so much directed against the present existence of prostitution, as against the conditions which have rendered it inviting and inevitable.

State or municipal regulation of prostitution is regarded as an inadequate remedy even for the

physical aspects of the evil. Chief reliance, the report thinks, is to be placed upon a definite policy, which is immediately capable of practical demonstration. It is suggested that overcrowding of tenement houses be prevented; that more elevated amusements be offered the poorer classes; that the material conditions of wage-earners, especially young women, be improved, and that hospital facilities for the treatment of venereal disease be increased. Segregation is not advised, for obvious and apparently sufficient reasons. An important recommendation provides that prostitution shall no longer be regarded as a crime.

All of these suggestions commend themselves to the unprejudiced observer and student of social conditions, particularly because they seem immediately feasible and calculated to lessen a growing vice. We are, however, inclined to agree with our contemporary, *American Medicine*, when it says that these measures are at best but "Reform by Rosewater." What, after all, is most needed, is to grapple with syphilis and gonorrhea themselves, as diseases which demand expert study and prevention by the means used in other branches of medical practice. Why not pass laws, it is suggested, similar to those in force for other infectious diseases, which are a far slighter menace to the public health. According to this view venereal disease should be reported to the properly constituted medical board, with the same punctiliousness that smallpox or diphtheria are reported, and the victims of the disease watched with the same scrupulous care. Some such plan as this, with the lock-hospital which should be its accompaniment, must go hand in hand with the educational reforms, upon which the New York Committee lays special stress. The problem is proverbially a difficult one, probably the most difficult of all which concern medicine in its relation to society, but just on this account it must be handled with vigor, both on its medical and social side. New York's experience, whatever it may prove to be, should serve as a useful lesson to our growing communities, which all have the same problem in varying degrees to solve.

THE CASE OF DR. PFEIFFER.

THE case of Dr. Immanuel Pfeiffer, now suffering with smallpox at his residence in Bedford, Mass., is one of more than ordinary interest in consequence of the peculiar circumstances under which the disease, in this instance, was contracted.

Dr. Pfeiffer, a native of Denmark, came to Boston a few years ago to practise medicine. He had previously practised at New Bedford, Pittsfield and North Adams in this State, and while at North Adams had achieved considerable notori-

ety by claiming to have abstained from food for a period of several weeks, after the manner of Dr. Tanner, the Italian Succi, and others. Soon after coming to Boston he appeared at a hearing at the State House, as a vigorous opponent of the law requiring the registration of physicians.

Early during the present epidemic of smallpox, and while vaccination was being conducted in Boston and the neighboring cities, he asserted himself as an opponent of vaccination. So great was this opposition on the part of Dr. Pfeiffer and others, together with their asserted disbelief in the protective power of vaccination, as to lead to a challenge from the chairman of the Board of Health of Boston, stating that any unvaccinated person who desired to visit either of the smallpox hospitals of Boston should have the privilege of doing so. No unvaccinated person accepted the offer, and subsequently Dr. Pfeiffer, upon his own urgent request, was allowed to visit the hospital at Gallup's Island, on Thursday, Jan. 23, and to see some of the severe cases of smallpox which had been sent there for care and treatment.

Dr. Pfeiffer, however, had been vaccinated, as he admitted, about 60 years ago. While in the hospital he had an opportunity to come into pretty close contact with those who were sick, and to breathe the more or less infected air of the wards. Due precautions were taken while he was there and at the time of his departure, to prevent any infection from being carried away in his clothes.

On his return to the city, the daily papers published a statement of his foolhardy experiment, with criticisms upon the freedom with which he had voluntarily mingled with crowds of people, attended a public meeting, etc. On Jan. 28 he appeared at a hearing before the Committee on Public Health, at the State House, as a petitioner for the abolition of compulsory vaccination, denouncing in a most impassioned manner the State laws upon this subject, boldly asserting his contempt for vaccination, and intimating that anyone like himself, who had neglected vaccination for 60 years, might expose himself to the disease with impunity. While speaking before this committee he appeared as a man of vigorous, robust constitution, in excellent health, nearly 6 feet in height, and weighing not far from 200 lbs. He was apparently considerably younger than the age which he admitted.

At an adjourned hearing which was held on Feb. 4, 12 days after his exposure at Gallup's Island, Dr. Pfeiffer was not present, notwithstanding his apparent deep interest in the subject.

The incubation period of smallpox varies within quite narrow limits, and may be stated as

from 10 to 16 days, but the majority of cases are taken ill in from 12 to 14 days after the date of exposure.

Early during the week ending Feb. 8, active search for Dr. Pfeiffer was made, and although he was traced from one part of the city to another, he was not found until Saturday, Feb. 8, at his country residence at Bedford, where he was found to be seriously ill with smallpox.

The condition of this man, who had not been vaccinated for 60 years and had been exposed for not more than a single hour to the direct infection of smallpox, may very properly be compared with that of the well-vaccinated physicians, nurses and other attendants who had been exposed to the same infection throughout the winter, without taking the disease in a single instance.

The experiment has no special scientific value, other than to add to accumulated testimony relating to the contagious character of smallpox, the protective power of vaccination and revaccination, the danger of their neglect, and the confirmation of the incubatory period, the date and hour of exposure being known.

The utter want of common sense by which the experimenter becomes the victim of his own folly is none the less apparent.

#### MEDICAL NOTES.

**THE MEDICAL DIRECTOR OF THE LOUISIANA PURCHASE EXPOSITION.**—The important post of medical director of the St. Louis World's Fair has been filled by the appointment of Dr. Leonidas H. Laidley.

**DEATH OF ONE OF THE TWINS.**—ONE of the twins operated upon recently by Doyen of Paris has succumbed to tuberculosis. The other is said to be progressing favorably.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Feb. 19, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 46, scarlatina 20, measles 176, typhoid fever 6, smallpox 27.

**BOSTON MORTALITY STATISTICS.**—The total number of deaths reported to the Board of Health for the week ending Feb. 15 was 232, against 243 the corresponding week last year, showing a decrease of 11 deaths, and making the death-rate for the week 21.1. Of this number 120 were males and 112 were females; 224 were white and 8 colored; 149 were born in the United States, 82 in foreign countries, and 1 unknown; 61 were of American parentage, 150 of foreign parentage,

and 21 unknown. The number of cases and deaths from infectious diseases reported last week is as follows: Diphtheria, 61 cases and 5 deaths; scarlatina, 19 cases and 3 deaths; typhoid fever, 7 cases and 4 deaths; measles, 115 cases and 5 deaths; tuberculosis, 17 cases and 40 deaths; smallpox, 38 cases and 6 deaths. The deaths from pneumonia were 24, whooping cough 2, heart disease 27, bronchitis 18, and marasmus 1. There were 9 deaths from violent causes. The number of children who died under 1 year was 40; the number under 5 years 60. The number of persons who died over 60 years of age was 52. The deaths in public institutions were 70.

**THE BOSTON CITY HOSPITAL ALUMNI ASSOCIATION.**—The Annual Meeting of the Boston City Hospital Alumni Association was held at the Hotel Lenox Feb. 13, 1902. Ninety-three men were present. At the business meeting which was held just before the dinner, officers were elected for 1902 and 1903 as follows: President, Dr. Henry R. Stedman; Vice-President, Dr. John W. Spooner; Secretary, Dr. William H. Kobey, Jr.; Treasurer, Dr. William H. Prescott; Member of Executive Committee for 5 years, Dr. Frank L. Day of Providence. The most important business was the change in the Constitution and By-Laws making members of the past and present visiting staff, not alumni, eligible for associate membership. Dr. William E. Boardman, the president, acted as toastmaster and introduced the following speakers: Mr. Conrad J. Rueter, Secretary of the Board of Trustees; Mr. B. S. Ladd of the Massachusetts Bar; Dr. John T. Bottomley; Dr. J. Baptist Blake, "The Boston City Hospital Clinical Club"; Dr. John G. Blake. Dr. Paul Thorndike sang a humorous medical song, the words by Dr. Baptist Blake.

**BOSTON SOCIETY OF MEDICAL SCIENCES.**—At a meeting of this society, held in Boston, Feb. 18, the report of the Cancer Commission of the Harvard Medical School was given. After introductory remarks by Dr. J. C. Warren, the following papers relating to cancer, largely illustrated by lantern slides, were read: Dr. E. E. Tyzzer, "Coccidium Infection of the Rabbit's Liver"; Dr. Charles J. White, "Molluscum Contagiosum"; Dr. Oscar Richardson, "Culture Experiments with Malignant Tumors"; Dr. J. D. Weis, "Four Pathogenic Torulæ"; Dr. E. H. Nichols, "Blastomycetes as a Cause of Cancer"; Dr. R. B. Greenough, "Cell-inclusions in Cancer and Non-Cancerous Tissue."

**A CASE OF SMALLPOX IN WEYMOUTH, MASS.**—A case of smallpox is reported from Weymouth, Mass., in the person of a priest of the local Catholic church.

## NEW YORK.

**PRESIDENT'S ADDRESS OF MEDICAL SOCIETY OF GREATER CITY OF NEW YORK.**—At a meeting of the Medical Association of the Greater City of New York, held Feb. 10, Dr. Andrew H. Smith, the president-elect, delivered his inaugural address. It was mainly devoted to the subject of Specific Medication, but in his introductory remarks he made the suggestion (which was received with great favor) that the practice of collective investigation of disease might profitably be engrafted upon the other work of the society. What he proposed was no very formal plan, but simply that two or three topics should be placed under consideration, upon which the members would be invited to accumulate observations as opportunity offered, and to send them to the secretary. When a sufficient body of observed facts had been secured, they could be made the subject of a report. At the present time, so far as he was aware, he said, there was no other society in New York engaged in work of this kind, and he thought the great city, with the millions of its five boroughs, in all of which the association had so many able representatives, offered a most inviting and fruitful field for such investigations.

**MORTALITY REPORTS.**—The reports of the Health Department show that the mortality in the city during the month of January represented an annual death-rate of 20.08, against 18.96 in December and 22.38 in January, 1901. Among the diseases in which the mortality increased were the following: The weekly average of deaths from diphtheria and croup increased from 48 in December to 50 in January; the weekly average of deaths from scarlet fever, from 13.25 to 25.75; from measles, 28 to 24.5; from whooping cough, 7 to 8.75; from smallpox, 2.25 to 9.75; from pneumonia, 161.25 to 202; from bronchitis, 46 to 65.5; from diseases of the urinary system, 117.75 to 124.25, and from influenza, 6 to 7.25. Among the diseases which showed a decline were the following: The weekly average of deaths from typhoid fever decreased from 17 to 11.5; from phthisis, 140.5 to 137, and from cancer, 49.75 to 41.5.

**GERMAN HOSPITAL AND DISPENSARY.**—The annual meeting of the German Hospital and Dispensary was held on Feb. 10. The reports showed that by the erection of an additional building, the capacity of the hospital had been increased to 245 beds. Of 3,398 patients treated during the year, 2,695 were nonpaying. In the dispensary 21,504 patients were treated free of charge. Recently \$100,000 has been contributed by four persons subscribing \$25,000 each in memory of deceased relatives. It was announced that Dr.

Florian King had been appointed on the surgical staff of the hospital, in place of Dr. Otto Kiliani.

**A SUIT FOR MALPRACTICE AGAINST DR. THOS. H. MANLEY.**—In Part IX of the New York Supreme Court, before Judge McLean, an action was brought by Selina Schneider against Dr. Manley for alleged malpractice in the unnecessary removal of a joint of the thumb. After a two days' trial, the jury, after a five minutes' deliberation, brought in a unanimous verdict for the defendant. The most unfortunate feature of the affair was the fact, as brought out in the evidence, that the prosecution was instituted on the advice of a brother practitioner.

**ADDITIONAL FREE VACCINATION STATIONS.**—In view of the present prevalence of smallpox the president of the Board of Health has had opened additional stations for free vaccination in all the boroughs of the city. Dr. Brannan, president of the Board of Trustees of Bellevue and allied hospitals, has issued an order that all patients received at the various hospitals under the control of the board should be vaccinated on admission, except in cases where the condition of the patient was such as to render vaccination injudicious.

**OBJECTIONS TO SMALLPOX HOSPITAL OVER- RULED.**—On Feb. 8, Vice-Chancellor Emery of New Jersey refused to grant an injunction restraining the East Orange authorities from maintaining a smallpox hospital in South Clinton Street in that place. Certain residents objected to the presence of the institution, but the health department secured the affidavits of a number of physicians, who expressed the opinion that it was not dangerous to the neighborhood.

**STONY WOLD SANATORIUM.**—The first annual meeting of the Stony Wold Sanatorium for working women suffering from incipient tuberculosis was held at the residence of Dr. George F. Shradly on Jan. 22. The treasurer's report showed that \$50,000 had been received during the year, and it was announced that in the spring, work would be begun upon the building on the site purchased for the sanatorium at Lake Kashaqua in the Adirondacks.

**THE EXCLUSION OF TUBERCULOSIS.**—At a meeting of the New York Academy of Medicine held Feb. 6, resolutions introduced at a previous meeting by Dr. S. A. Knopf were adopted deploring the action of the U. S. Treasury Department declaring pulmonary tuberculosis a "dangerous contagious disease," and debarring consumptive aliens, rich and poor, from entering the country. The last two of the resolutions are as follows: *Resolved*, That the academy considers the exclusion of nonpauper tuberculous immigrants and

consumptive aliens visiting our shores unwise, inhumane, and contrary to the dictates of justice; be it further *Resolved*, That while the academy is convinced of the communicability of tuberculosis, and urges all possible precautions against the spread of the disease from sputum and tuberculous food substances, the academy is opposed to all measures by which needless hardship is imposed upon the consumptive individual, his family or his physician.

**NEW LAND FOR WOMAN'S HOSPITAL.**—The Woman's Hospital, which some time ago sold its present site, the block between Park and Lexington Avenues, and 49th and 50th Streets, to the New York Central Railroad for \$400,000, has just purchased, for about half that sum, a plot of land in Cathedral Heights, running from 109th to 110th Streets for the erection of its new buildings.

RECORD OF MORTALITY  
FOR THE WEEK ENDING SATURDAY, FEB. 8, 1902.

CITIES.	Population * Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Diarrheal diseases.	
New York . .	3,065,352	1,519	537	23.30	17.90	3.62	.33	2.16	
Chicago . .	1,852,828	—	—	—	—	—	—	—	
Philadelphia .	1,348,024	581	146	23.39	19.78	2.58	2.24	.59	
St. Louis . .	603,717	—	—	—	—	—	—	—	
Baltimore . .	525,330	187	60	14.44	19.79	.53	.53	3.74	
Cleveland . .	411,826	—	—	—	—	—	—	—	
Buffalo . .	375,742	—	—	—	—	—	—	—	
Pittsburg . .	341,401	140	43	20.70	22.15	2.14	7.14	2.96	
Cincinnati . .	332,032	—	—	—	—	—	—	—	
Milwaukee . .	304,375	—	—	—	—	—	—	—	
Washington . .	289,537	—	—	—	—	—	—	—	
Providence . .	185,870	81	26	13.57	22.20	—	—	1.23	
Boston . .	588,736	199	58	27.50	15.00	3.09	1.60	1.50	
Worcester . .	127,337	38	19	10.52	15.78	2.63	—	—	
Fall River . .	111,872	32	23	18.72	31.20	9.36	—	3.12	
Lowell . .	99,574	35	15	22.85	8.57	17.14	—	—	
Cambridge . .	96,334	29	11	20.68	13.79	—	—	—	
Lynn . .	71,144	20	2	5.00	15.00	—	—	—	
Lawrence . .	67,275	19	5	15.74	15.78	—	—	—	
Springfield . .	66,854	24	7	29.16	5.26	5.26	—	—	
Somerville . .	65,882	24	5	20.83	20.83	—	—	3.53	
New Bedford .	65,574	24	5	12.50	12.50	—	—	—	
Holyoke . .	48,065	17	7	23.52	17.64	5.88	—	—	
Brookline . .	43,208	11	1	—	—	—	—	—	
Haverhill . .	40,392	3	1	33.33	—	—	—	—	
Salem . .	36,567	10	3	20.00	—	—	—	—	
Newton . .	36,336	6	1	—	—	—	—	—	
Malden . .	35,390	9	1	—	22.22	—	—	—	
Chelsea . .	35,264	—	—	—	—	—	—	—	
Fitchburg . .	33,848	11	2	9.09	27.27	—	—	—	
Taunton . .	32,759	11	1	36.36	—	9.09	9.09	—	
Everett . .	27,114	5	—	40.00	—	—	20.00	—	
North Adams .	26,643	3	1	—	66.67	—	—	—	
Gloucester . .	26,121	3	3	12.50	12.50	—	—	—	
Quincy . .	25,307	6	1	—	60.00	—	—	—	
Waltham . .	24,612	7	—	14.30	28.60	—	—	—	
Pittsfield . .	22,311	4	1	25.00	50.00	—	—	—	
Brookline . .	21,679	4	1	—	—	—	—	—	
Chicopee . .	20,399	10	5	20.00	30.00	10.00	—	—	
Medford . .	20,014	6	1	16.47	—	—	—	—	
Newburyport .	14,478	8	3	12.50	—	—	—	—	
Melrose . .	13,384	2	—	—	—	—	—	—	

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,129; under five years of age, 1,000; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption; 682, acute lung diseases 565, consumption 326, scarlet fever 42, erysipelas 8, typhoid fever 34, whooping cough 11, cerebrospinal meningitis 14, smallpox 37, measles 44, diarrheal diseases 55.

From whooping cough, New York 6, Philadelphia 2, Boston 2, Fall River 1. From cerebrospinal meningitis, New York 7, Baltimore 1, Providence 1, Worcester 2, Lynn, Lawrence and Somerville 1 each. From scarlet fever, New York 31, Philadelphia 5, Pittsburg 1, Boston 2, Worcester, Somerville and Newburyport 1 each. From erysipelas, New York 6, Philadelphia 1, Boston 1. From smallpox, New York 10, Philadelphia 20, Boston 7.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,800,427, for the week ending Jan. 25, the death-rate was 17.7. Deaths reported 5,048; acute diseases of the respiratory organs (London) 357, whooping cough 112, diphtheria 100, measles 115, smallpox 38, scarlet fever 64.

The death-rate ranged from 6.2 in Walthamston to 30.3 in York; London 18.0, West Ham 17.2, Croydon 15.5, Brighton 17.2, Portsmouth 16.5, Southampton 16.9, Bristol 17.8, Birmingham 18.2, Leicester 20.0, Nottingham 17.2, Birkenhead 15.3, Liverpool 23.6, Manchester 20.7, Salford 20.5, Bradford 17.8, Leeds 18.4, Sheffield 17.7, Hull 17.6, Newcastle-on-Tyne 20.5, Cardiff 17.6.

#### METEOROLOGICAL RECORD

For the week ending Feb. 8, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		We'th'r		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.			
S....2	29.74	40	48	31	100	83	92	N	E	S	W	12	24	R.	O.	.82
M....3	29.46	26	31	20	55	54	54	S	W	W	W	40	24	F.	C.	.24
T....4	29.77	22	28	15	65	94	80	S	W	W	W	14	12	F.	C.	.01
W....5	29.98	18	23	12	64	55	60	W	W	N	W	8	14	C.	C.	
T....6	30.04	20	29	12	62	60	61	W	W	N	W	15	9	C.	C.	
F....7	29.75	26	36	16	57	49	53	W	W	W	W	15	20	C.	C.	
S....8	29.36	20	24	17	62	78	70	W	W	W	W	18	21	C.	N.	T
☞	29.73		31	18			67									.87

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
☞ Mean for week.

#### OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEB. 6, 1902.

KALLOCH, P. C., surgeon. Granted leave of absence for 14 days from Feb. 5. Feb. 4, 1902.

KINYOUN, J. J., surgeon. Department approval of June 28, 1901, granting Surgeon Kinyoun leave of absence for 4 months, amended so that said leave shall be for 1 month and 21 days. Feb. 4, 1902.

THOMAS, A. R., passed assistant surgeon. To proceed to London, Eng., for special temporary duty. Jan. 30, 1902.

CLARK, TALIAFERRO, assistant surgeon. Granted leave of absence on account of sickness, for 14 days from Jan. 16. Feb. 4, 1902.

BULLARD, J. T., acting assistant surgeon. Granted leave of absence for 25 days from Feb. 1. Feb. 4, 1902.

GOLDSBOROUGH, B. W., acting assistant surgeon. Granted leave of absence for 2 days. Jan. 28, 1902.

WALKER, R. T., acting assistant surgeon. Granted leave of absence for 4 days from Feb. 18. Feb. 5, 1902.

MAGUIRE, E. S., hospital steward. Granted leave of absence for 30 days from Feb. 5. Feb. 4, 1902.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING FEB. 8, 1902.

F. M. FURLONG, assistant surgeon. Ordered to the Naval Hospital, Norfolk, Va., instead of to the "Topeka."

W. H. ULSH, assistant surgeon. Detached from the "Annapolis" and ordered to the Naval Hospital, Mare Island, Cal., for treatment.

J. R. WAGGENER, medical inspector. Detached from the "Constellation" and to duty at the Marine Recruiting Rendezvous, Boston, Mass.

J. F. URLE, surgeon. Detached from the Marine Recruiting Rendezvous, Boston, Mass., and ordered to the Naval Dispensary, Washington, D. C.

L. W. SPATLING, surgeon. Ordered to duty at the Naval Hospital, Portsmouth, N. H.

S. G. EVANS, passed assistant surgeon. Detached from duty at the Naval Hospital, Portsmouth, N. H., and ordered to the Pensacola Navy Yard.

F. J. B. CORDEIRO, surgeon. Detached from the "Pensacola Navy Yard," and ordered to the "Constellation."

C. M. OMAN, assistant surgeon. Ordered to duty at the Naval Hospital, New York.

#### SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR OBSTETRICS AND DISEASES OF WOMEN.—The next meeting of the section will be held in Sprague Hall, Medical Library, 8 The Fenway, Wednesday, Feb. 26, 1902, at 8.15 P.M. Dr. W. H. Conant will read a paper on "The Modern Operation for Radical Cure of Umbilical Hernia," and Dr. E. W. Cushing will present a paper on "The Latest Cancer Nostrium."

E. S. BOLAND, M.D., Chairman,  
W. H. GRANT, M.D., Secretary,  
419 Boylston Street.

THE AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.—The eighth annual meeting of the American Laryngological, Rhinological and Otolological Society will be held in the city of Washington, D. C., June 2, 3 and 4, 1902.

THE PHILADELPHIA NEUROLOGICAL SOCIETY.—A stated meeting of the Philadelphia Neurological Society will be held on Tuesday, Feb. 25, 1902, at 8.15 P.M. Dr. Adolf Meyer, Director of the Pathological Institute for the New York State Hospitals, will, by invitation, deliver an address entitled "Conditions for Psychiatric Research." Members of the profession are cordially invited to attend.

After the address a reception will be tendered Dr. Meyer at the University Club.

AUGUSTUS A. ESHNER, 224 South Sixteenth Street.

#### RECENT DEATHS.

DR. HENRY BALSER of New York, a graduate of the Medical Department of the University of the City of New York in 1866, died on Feb. 14, at the age of 62.

DR. EDWIN W. PYLE, a prominent physician of Jersey City, N. J., died on Feb. 8 from pneumonia. He was born in Unionville, Pa., in 1849, and was a graduate of Bellevue Hospital Medical College. For several years past he had been on the visiting staff of the New York Eye and Ear Infirmary.

#### BOOKS AND PAMPHLETS RECEIVED.

La Grippe. By Matthew J. Leland, A.M., M.D., Ph.D. New York: J. H. Vall & Co. 1901.

Leçons sur les Maladies du Système Nerveux (Année 1897-1898) par F. Raymond. Fourth and Fifth Series, 1900 and 1901. Paris: Octave Doin, Editeur.

Twenty-third Annual Report of the State Board of Charity of Massachusetts, January, 1902. Boston: Wright & Potter Printing Co., State Printers. 1902.

Short Talks with Young Mothers on the Management of Infants and Young Children. By Charles Gilmore Kerley, M.D. Illustrated. New York and London: G. P. Putnam's Sons. 1901.

Lectures on Chemical Pathology in its Relation to Practical Medicine, delivered at the University and Bellevue Medical School, New York City. By C. A. Herter, M.D. Philadelphia: Lea Brothers & Co. 1901.

A Manual of Clinical Diagnosis by Means of Microscopical and Chemical Methods for Students, Hospital Physicians and Practitioners. By Charles E. Simon, M.D. Fourth edition, revised. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

## Original Articles.

## FIVE MAINE "MURDERS."

BY ADDISON S. THAYER, M.D., PORTLAND, ME.

In dealing with insane persons who have committed homicide, the experience of the State of Maine has been peculiar. The same theory which exists elsewhere among civilized people—that insane persons who commit acts of extreme violence are to be held responsible to a less degree than persons of sound mind—exists also in Maine. It exists, but it does not prevail.

There is no apparent reason why courts and juries in Maine should especially suspect the use of insanity as a subterfuge—a cloak for crime. It is true that in two recent instances in Maine a criminal has feigned insanity. In one of these two instances an expert was found who testified that in his opinion the criminal was insane. The overwhelming weight of expert evidence, however, indicated that this prisoner was shamming; and an arrant shammer he proved to be. The second prisoner who feigned insanity was promptly detected. Neither of these two criminals was charged with homicide.

Persistent inquiry has failed to bring knowledge of a single instance in which the verdict "not guilty by reason of insanity" has been rendered in Maine in a case of homicide.

On the other hand, in this State, within the last 25 years, there have been at least five cases of homicide, and probably several more than five, for the defense of which the plea of insanity has been adduced. In all of these five cases the prisoner has been found guilty of murder. All of these five convicts have shown unmistakable evidence of insanity. Two of them, before death, which occurred within a few years of conviction, became so palpably insane that nobody questioned it. The three others are in the State prison today, and are still insane.

The visiting physician of the State prison, Dr. Addison R. Smith, states that in addition to these three convicts there are now in the prison, under sentence for murder, five others, of whom one is probably insane and four are unquestionably insane.

During the recital of a few facts concerning five of these cases, attention is invited to the following points: Behavior which would suggest, even to people unaccustomed to the study of mental disease, the presence of insanity. The unanimity of the opinions of the experts, and the unanimity with which their opinions were disregarded. Particularly, the illumination which these cases throw upon "the only proper legal criterion," the right-and-wrong test for insanity, a test which every observing asylum-nurse knows to be fallacious, and which would brand as criminals two-thirds of the inmates of asylums for the insane.

There can be little liability to error concerning the only proper legal criterion as it exists at present in Maine. It has been restated within the past

year in a decision of the Supreme Court in the case of *State vs. Bradford Knight*. The language of the rescript, rendered by Judge Whitehouse, is as follows: "When the insanity of the accused is pleaded in defense, the test of his responsibility for crime, afforded by his capacity to understand the nature and quality of the act he was doing and his mental power to distinguish between right and wrong with respect to that particular act at the time he committed it, is the only proper legal criterion."

**CASE I.** On the afternoon of May 11, 1878, Jason P. Scribner, at his home, three miles from the State House, in Augusta, seized a shovel and pounded the heads of the three youngest of his own children—five, three and two years of age. One of the children died immediately, the baby died in a few hours, and the other child eventually recovered. Scribner at the time was 34 years old. One of his brothers had died insane at the hospital in Augusta, and there had been other instances of insanity among his relatives. For five years Scribner had been brooding over his own troubles, some of which were imaginary, but the first of which was only too real. While in a partially drunken condition he had accidentally turned a kettle of boiling water over one of his children, causing its death. Not long afterwards he gave up the use of alcohol altogether, and still later he rose for prayers in a religious meeting. But he believed that the people in the church did not treat him well, and, in fact, that everybody, as he expressed it, was picking upon him. He thought his brother's wife made fun of him, and with his brother he was not on speaking terms. He hated especially to see people going towards the meeting-house. When he thought of the Lord or the Savior, a sort of madness would seize him. At 2 o'clock one morning he sprang out of bed, rushed into the room where his father lay dying, and attempted to strike his father with a cudgel, being restrained by his brother and sisters. At another time he ran out into the darkness screaming "Murder! Murder! The devils are after me!" At various times he threatened to kill all the members of his family, and to burn not only the house where he lived, but the whole city of Augusta.

A few days before the homicide, his wife applied to Judge True to have her husband taken care of. His wife stated that while ugly with her, he was always kind to the children. On the morning of the homicide he held and rocked the baby and seemed especially affectionate. After he had pounded the heads of his children with the shovel, he went out into a field and cut his own throat, partially severing the windpipe.

On the following day he was rational, and stated that he came to himself in the field and found his throat bloody, but could remember nothing of what had happened before, except that he and his wife had quarreled on the way home from the cemetery. "Oh, God!" he exclaimed, in his cell at the jail, "what shall I do? Why did I do it? God help me!"

At the trial of Scribner before Judge Libby, Dr. Harlow, superintendent of the insane hospital at Augusta, testified that Scribner was insane, and not responsible for his act. The verdict of the jury was murder in the first degree.

Scribner remained in the State prison at Thomaston from February, 1880, to May, 1884. During the whole of that time he was manifestly insane, and at intervals was noisy and violent. At the recommendation of a commission appointed to examine into his mental state he was removed to the insane hospital at Augusta, arriving in a delirious and critical condition, and surviving only eleven days after the removal.

**CASE II.** On the 5th of September, 1884, Thomas J. Libby, of Prout's Neck, shot and killed Lydia Snow at the City Hotel, Portland.

Libby was 44 years old. For nine years he had been keeper of a small summer hotel, the West Point House. He had used alcohol at times to excess, especially dur-



ing the preceding summer, but for a fortnight before the homicide he had taken little liquor, and for 24 hours practically none.

On the day before the shooting Libby came to Portland and transacted business, but acted queerly. He went into three barber shops and in each of them he had a shampoo, because his head felt bad. He asked the same question of the same person four times in succession. He was heard talking to himself as he walked along the street. Libby afterwards consistently affirmed that he lost consciousness of his own acts early on that afternoon, and had remembrance of only one unimportant event previous to a period on the following day, when he found himself in jail, talking with his counsel. Evidence showed that at 7 o'clock in the evening he came with Lydia Snow to the stable where he had left his horse, and drove with her to a place in South Portland where he was well known, and where his appearance in her company would be likely to excite comment. He left the Snow woman and his team at this place, and went to a lodge room, where he had expected to take a degree as a Knight of Pythias. His behavior was so unnatural that his friends advised him to postpone the taking of the degree. He drove back to Portland with the woman and took a room with her at the City Hotel.

The testimony of one of the employees of the hotel was substantially as follows: "At 2 o'clock in the morning I was called to the room and was asked by Libby to bring some liquor. This was refused, and water brought, which Libby drank, appearing very pleasant. After this I passed the room several times, and heard the occupants talking and laughing. At 8 o'clock in the morning I was called there again. The woman came to the door and said, 'I want you to take that revolver away from the man.' I peered around the edge of the door, and saw Libby lying on the bed, with his arms above his head, and a pistol in his right hand. Libby cocked the revolver and pointed it at me, mumbling something which I did not wait to understand, but hastily closed the door and stood listening in the corridor. Then I heard two shots quickly fired, a screech, a third shot, a pause, and a fourth shot. I ran to the office and telephoned to the police. The door of the room was found to be fastened from the inside."

The woman, lifeless, two bullets having passed through her head, was lying near the door. Libby was on the floor near the bed, with a bullet hole above and behind his ear. The policemen lifted him, and with their assistance he walked to a hack. On the way to the station the officers endeavored to get him to talk. He tried to answer, but they could not understand what he said. He made a loud, mournful noise, as though suffering. Dr. Charles D. Smith, who saw Libby soon after his arrival at the police station, searched for evidence that Libby had been drinking, and concluded that he had not.

The defense in the Libby case offered what seemed at the time the most plausible explanation for an apparently motiveless deed—delirium tremens. As the sequel showed, it is highly probable that the act of shooting was one of those strange freaks which characterize the early stage of the well-defined disease which ended Libby's life—paretic dementia. Libby served seven years in the State prison, and then was transferred to the insane hospital at Augusta, where he lived a little more than a year.

An extract from the closing argument in the Libby case, delivered by Attorney-general Orville Baker, is not without historical interest, in view of the sequel. The attorney-general referred to the plea of insanity as the old familiar defense, when there is no other possible refuge. If the absurd claim were made that the President was shot by someone other than Guiteau, no jury would listen. There was nothing for it but to try to make the jury believe that Guiteau was insane. And when a murderer knows that the person he assaulted was a harmless woman, and the plea of self-defense would be futile, he pleads insanity. "Does he, or his counsel, claim that he is insane now?"

'Where is the motive?' says the counsel for the defense. Let the prisoner at the bar call up the cold body of Lydia Snow, and let her spectral light rise before you on that stand, and she will tell you the motive for that act. He shoots her, and the motive slumbers in the grave."

The verdict in the Libby case was murder in the second degree. So far as may be judged from experience in Maine, verdicts are more likely to be mitigated by delirium tremens than by paranoia. A paranoiac, as a rule the helpless victim of disease, is held to deserve severer punishment than a delirious inebriate, the creature of his own previous volition.

CASE III. On the morning of Dec. 7, 1895, Alfred Hurd of Biddeford killed his father with a hatchet.

Former schoolmates of Alfred Hurd stated that as a boy he was odd, cranky, inclined to be silent and solitary, and that he appeared to be "perpetually thinking." He attended a business college in Portland and was employed as a telegrapher in several different railway stations. It is said that he was an indifferent operator—never expert. Two years before the homicide he lost his position at Somerville on account of his peculiar actions. It was stated that he would sometimes refuse to receive dispatches. About this time he was disappointed in a love affair. He spent a good deal of time in reading books, especially the Bible and Fowler's Phrenology. He made no effort to get another position, but remained at home, doing no work at all. On the morning of the homicide he went to the room where his father was sleeping, struck his father on the head with a hatchet, and then cut his father's throat with a razor. Then he washed the blood from his hands, and went to notify the coroner and the police that a murder had been committed. He conducted the city marshal to the bed where his father's body was lying. Later in the day he said to the officer, "I committed that murder. I stood there looking at father as he lay asleep, and the thought came into my head to kill the man who had talked about sending me away if I didn't find work. That is the last I remember until after the thing was done. Now the jury must decide whether I am guilty. I know that if they find me so, I shall be sent to Thomaston for life."

At the trial of Hurd, Dr. B. T. Sanborn, who had had him under observation at the insane hospital for five months, testified that Hurd was in the early stage of dementia, of a degenerative and progressive type. Under the ruling of Judge Emery, the jury found Hurd guilty of murder in the first degree.

On the 17th of December, 1901, the writer saw and examined Alfred Hurd, in the insane department of the State prison at Thomaston. When the subject of phrenology was touched upon, Hurd showed a gleam of interest, although little comprehension. He is thoroughly demented; and his dementia has been steadily progressive during the five years in which he has been a convict.

CASE IV. Bradford P. Knight, at the time when he killed Mamie Small, Feb. 13, 1899, was 45 years old. His mother, during a considerable part of her life, had recurrent attacks of insanity. His uncle died insane at the hospital in Augusta. One of his sisters was treated for two years at the same hospital during an acute attack of insanity, and is now demented. Another sister and also a brother died insane. He himself, as a boy, was odd, shy, and oppressed by a sense of inferiority and a fear of impending want. At the age of 20 he had what was probably a mild attack of melancholia. At the age of 35 he suffered from sunstroke, followed by mental depression. He became sleepless, could not work, spent much time in weeping, felt that God's spirit had left him, and that his soul was lost. He wandered away from home, and was committed as an insane person to the hospital at Augusta.

After leaving the asylum, for most of the time he was able to work, but was periodically depressed. He feared that he might kill his children; several times he had strong impulses to do it; and he told his wife that perhaps it would be better if he returned to the



asylum. He made several half-hearted attempts at suicide. He imagined that people were down on him, and watching him and laughing at him. His relations with his wife's sister, Mamie Small, were intimate to the extent of criminal intimacy. For a time he believed her to be the only real friend that he had; but when she left him, he interpreted her desertion as a part of the general conspiracy to get him out of the way, by claiming falsely that he was insane, and sending him back again to the asylum. And so he killed her.

After Knight was arrested and taken to the jail at Augusta, he refused food because he said it was poisoned. On account of this and other peculiar conduct, he was transferred to the insane hospital for observation. While there he paced the floor, talked to himself, and at times was so violent as to require restraint with sheets. On one occasion he explained to an attendant that he was swearing "against that clique down there." He secreted a door-knob for the purpose of making a sling-shot with which to kill the superintendent. He admitted that this was his intention, and stated some time afterwards that it would have been right to kill a superintendent who suppressed his letters and tried to turn his family against him. As for remorse for the killing of Mamie Small, he said that he felt none whatever; that Mamie herself had forgiven him and frequently appeared to him at night, as happy and smiling as ever. But there was one occurrence which had taken place 10 years before, which kept him in perpetual torment; the Lord had appeared to him at a religious meeting and had commanded him to go home to his house and pray; instead of doing so he went into his woodshed and prayed there. From that time he was doomed to eternal torment in hell.

After remaining for seven months at the insane hospital, Knight was tried at Augusta before Judge Emery, in October, 1899. A few days prior to the arraignment, the county attorney of Kennebec, George W. Heselton, Esq., who had expressed great contempt for the notion that Bradford Knight was not responsible by reason of insanity, summoned to Augusta three experts in insanity—Dr. Edward Cowles, superintendent of the McLean Hospital, Dr. H. M. Quinby, superintendent of the Worcester Insane Hospital, and Dr. George F. Jelly, chairman of the Massachusetts State Board of Insanity. These experts were requested to examine and report upon Bradford Knight, without consulting anyone except the county attorney. They spent five hours in examining Knight, and several hours more in conferring and in preparing a report. At the trial, the evidence of these experts was demanded by counsel for the defense. Hon. Herbert M. Heath, on the ground that this evidence was paid for by the State and belonged to the people. The prosecution, however, presented no expert testimony at all. For the defense, Dr. Sanborn, superintendent of the Maine Insane Hospital, and Dr. C. P. Bancroft, superintendent of the New Hampshire Insane Hospital, testified positively to the fact that Knight was suffering from chronic delusional insanity of the melancholic type, tending toward dementia.

"The jury," in the words of one of the ablest professional men in New England, "returned the only verdict possible under Judge Emery's very explicit charge, 'guilty of murder in the first degree.'"

Twelve days afterwards, by order of Judge Emery, Knight was sent back to the insane hospital. The sheriff did not dare to keep him at the jail.

After the exceptions of Knight's counsel had been overruled by the full bench, sentence was passed, and Knight was committed to the State prison, where he was seen by the writer on Dec. 19, 1901. No astuteness is needed now to take the measure of this man's feeble mind. When religion was touched upon, Knight broke down completely, cried in a childish way, and told the story of how he had disobeyed the Lord by praying in the woodshed. For most of the time he is able to paint broom handles; but at intervals he is noisy and violent.

CASE V. George H. Brainerd, who shot five men at the telephone exchange in Portland on the 25th of last

April, inherited a tendency to insanity. His father suffered from at least two attacks of acute melancholia. Of his father's family, a sister was extremely peculiar, a brother was subject to periods of great mental depression, and another brother, during the last 10 years of his life, was a pronounced case of melancholia. The mental instability in these five members of the family seems to have been transmitted from the father's mother, who was mildly insane.

Brainerd's delusion that he was the victim of a conspiracy, now centering in certain fellow employees, now widening to include the Spanish people, the followers of the Roman Catholic faith, the New England Telephone corporation, or the whole world, but always, with strange subtlety, directed against himself, his mother, and his sister's family—this systematized, ever-present, overpowering delusion, always the most important fact in his life, allowing him at times comparative peace and enjoyment, at other times drawing closer and closer in its insidious, insistent, relentless approach, until escape appears impossible and madness his appointed part—first fastened upon George Brainerd's life while he was at work in South America in 1887. The story of Brainerd's illness there, his confinement in a hospital, the accumulating evidence of a conspiracy, and the means by which, for a time, he succeeded in eluding the conspirators, is circumstantial, consistent and convincing—as the story of an insane delusion. Years went by, and his work for the New England Telephone Co., as foreman in the construction of large switchboards, became increasingly complicated. In the promotion of men younger than he, whose technical training had been broader than his own, but whose knowledge of detail had been learned from him, he found renewed evidence of relentless pursuit. A year before the homicide, foreseeing his approaching doom, he wrote out a statement concerning this conspiracy. He gave the names of certain of the conspirators—five of his fellow workmen, no one of the five being of the number whom he afterwards shot. He stated that his object in writing this was to enable his mother and sister to use it afterwards as evidence, thereby to secure damages from the telephone company, who should be held responsible for what was about to happen to him.

A few days prior to the homicide, Brainerd consulted a firm of lawyers in Boston, Bartlett & Anderson, as to measures of legal defense against this conspiracy. To four nonmedical witnesses who testified at the trial, Brainerd had confided at various times his belief that he was in immediate, personal peril, and that he heard warning voices, inaudible to others. On the day of the homicide he overheard people saying, "The time has come; they will do him tonight." While in the insane hospital at Augusta awaiting trial, Brainerd made an attack upon a supposed conspirator. The delusion still is, and will remain, a part of himself.

Eight medical experts examined Brainerd, five at the request of the state and three at the request of the defense. All agreed in the opinion that Brainerd was insane, and that his homicidal acts were the consistent product of his insanity. The verdict of the jury was murder in the first degree.

The voice of the people, formulating opinions concerning these five cases, is perhaps interesting as a study in human nature, although a trifle too vacillating to be accepted as the voice of God. The day following the Scribner homicide it is estimated that more than 1,000 people from the little city of Augusta went out over the Brook Road toward Sidney, to visit the scene of the tragedy. Almost everybody's first exclamation after hearing of the homicidal acts of Scribner, Hurd and Brainerd, was substantially this: "He must have been crazy." Presently people began to say, "What an ugly fellow he must have been!" The assassination of President McKinley shortly

before the trial of Brainerd, called out the remark, "I suppose the lawyers and doctors will try to make out that Brainerd is insane." When the insanity of Brainerd was demonstrated in court, and many people who heard the testimony were convinced, there was not a little unfavorable criticism of county officers, because they had subjected the people to large and unnecessary expense. Perhaps the majority of those who had followed the case evinced surprise at the verdict. Acquiescence, however, was speedy and cheerful. "After all," people said, "the State prison is the best place for a man like him."

The sexual immorality in the lives of Brainerd, Knight and Libby did not, as a rule, appear to impress people as evidence of defective inhibition and, to a certain degree, a sign of mental weakness; on the contrary, it aroused prejudice; and it is perhaps not unnatural that many good people should allow their brain cells to receive no further commotion from such reports than may be caused by the shock to their moral sense.

The unnatural nature of the acts of Scribner and Hurd—the killing of their nearest relatives—also gave an inward curve to the judgment of many people. A crime so hideous and inhuman, they reasoned, can meet no punishment sufficiently severe.

As Dr. Barr, of Elwyn, has remarked, "Brutality on the one hand and sentimentality on the other have obscured the truth."

Judge Emery's ruling in the Knight case, vigorous and sharply defined as it is, setting in bald relief the ancient and rock-ribbed criterion of the law, may be destined—nay, even intended—to illumine in order that it may destroy. The abolishment of Sunday blue laws, for example, might best be accomplished by the object lesson of a period of rigid enforcement. There is, however, this difference between Sunday blue laws and the right-and-wrong test, that the underlying principle of the blue laws is worthy of praise, while the criterion by which responsibility for homicide is now determined in Maine is inherently incorrect.

A neat illustration of the fallacy of this legal criterion is afforded by an English case, to which Mr. Justice Hawkins has referred. In this case, a man named Smith was killed by a man named Ware, both being inmates of an insane asylum. Ware admitted that he had killed Smith; and he showed that he knew that his act was wrong, by extracting a promise that he should not be punished in case he gave up the iron bar with which he killed Smith. "No man in his senses would suppose," says Mr. Justice Hawkins, "that any jury would find Ware responsible."

If we could only have in Maine a case as plain as this,—if the county attorney of Kennebec would insist upon trying in court the next homicide which occurs in the insane hospital at Augusta, the sickening cruelty of the only proper legal criterion might become as evident to the courts as it has been for a long time to observers of the insane. The State of Maine, in employing

experts, spends money generously for the purposes of ascertaining the truth and protecting the insane. Under present rulings this expenditure is useful to a limited degree in diffusing a knowledge of insanity; as regards the attainment of any other end, it seems to be both wasteful and futile.

In a conflict between science and law, the law must ultimately yield. This the Maine courts foresee, and one may be pardoned for reading between the lines of the rescript of Judge Whitehouse the regret of a warm-hearted man, that in spite of the plain teachings of modern observation, the Maine courts cannot yet deviate from the old criterion.

To the lay mind it seems strange that our courts, accustomed as they are to remind witnesses of a radical difference between fact and opinion, should in this matter assume for themselves the predetermination of fact.

For example, one would not expect a judge to rule as follows: "For the purposes of the law this case may be regarded as Asiatic cholera, if the jury so find. It is not a case of typhoid fever. There is no such disease as typhoid fever. Whatever the doctors have said concerning such a medical disease, the law does not recognize its existence." And yet, this is a not unfair reduction to the absurd, of the present rulings of Maine courts in relation to mental disease. No jurist, perhaps, has pointed this out so clearly as Judge Somerville, formerly of Alabama, now of New York, at one time president of the New York Medico-Legal Society. Judge Somerville's conclusions are the fruit of singularly complete and painstaking research, following upon years of service as asylum trustee and lunacy commissioner.

In the case of *Parsons vs. State*, in 1886, Judge Somerville said: "The question of the probable existence of mental disease, and the effect on the mind and conduct of the patient, is a question of fact to be proved by evidence. It is equally obvious that courts cannot upon any sound principle undertake to say what are the invariable or infallible tests of such disease. In the present state of the law, we are confronted with this practical difficulty, that the courts in effect charge the juries as matters of law that no such mental disease exists—that there can be, as a matter of scientific fact, no cerebral defect, congenital or acquired, which destroys the patient's power of self-control, his liberty of will and action—provided only he retains a mental consciousness of right and wrong."

For 30 years the courts of New Hampshire have ruled that tests of mental disease are matters of fact. Whether the defendant had a mental disease, and whether his act was the product of such disease, are questions of fact for the jury.

In Massachusetts, so long ago as 1844, the ruling of the courts was broadened by Chief Justice Shaw, to include mental disease by whose overwhelming violence intellectual power is for the time obliterated.

Not radically different from Massachusetts rulings are the decisions in Michigan, Indiana, Kentucky, Delaware, Alabama, Arkansas and Montana. In the Scottish courts this is now held to be a question, not of knowledge, but of soundness of mind. As was pointed out in 1874 by Lord Justice Moncrieff, a knowledge that an act is wrong may stimulate an insane man to do the act simply because it is forbidden.

A study of present conditions in Maine appears to justify the following conclusions:

That insanity has never been a cloak for homicide.

That within the last 25 years there have been at least five cases of homicide, and probably others, in which the doer of the act has been insane before and after he did it, and in which there is at least a high degree of probability that the act itself was the product of his insanity.

That these men have all been convicted of murder.

That the convictions are to be attributed in part to the explicit, lucid, archaic and rigorous rulings of the Maine courts.

That the practical working in Maine of the "only proper legal criterion" is to concede irresponsibility only to idiots and to maniacs.

That a realization of these facts on the part of the courts, the prosecuting officers and the public, together with increasingly accurate knowledge of the nature of mental disease, must inevitably lead to verdicts which are at the same time more just, more scientific and more humane.

#### THE SIGNIFICANCE, PATHOLOGICAL AND CLINICAL, OF ABDOMINAL PAIN.<sup>1</sup>

BY MAURICE H. RICHARDSON, M.D., BOSTON.

[Concluded from No. 8, p. 192.]

THE chief significance of abdominal pain in the second group is the earliest possible recognition of lesions which demand immediate surgical intervention. The pain in every lesion mentioned—and in fact in many that have not been specifically named—is such as to demand the earliest possible exploration. Not a single lesion presents even a fair chance of spontaneous recovery. Immediate exploration must be the decision if, from a careful history of the onset of the pain and intelligent observation of its severity, extent, and possible urgency, the observer rightly interprets the significance of the pain.

Judged by the frequency of the lesions comprised in this group, no more important subject in connection with abdominal surgery can be imagined. The success of intervention is in direct proportion to its promptness. In gastric ulcer, for instance, the mortality after operations performed in the first 12 hours is in markedly favorable contrast with that of the operations of the later hours—so in the perforations of typhoid ulcers, and, in fact, in all rapid and overwhelming

extravasations. The surgeon who waits until his diagnosis is made certain by the appearance of unmistakable signs of general peritonitis will wait in vain for the successful issue. He should realize the importance of the initial pain. With the confirmatory signs of rigidity and tenderness, explorations made at once will show, in marked contrast with the deplorable results thus far attained, a splendid percentage of recoveries.

Pain in localized infectious processes of different viscera—processes which pursue a comparatively slow course, and in which the infection is confined to the viscus, or to its contiguous peritoneum—is usually slow of onset and moderate in severity. The pain is continuous and gradually increasing. When the process reaches the peritoneum, to the pain of the original lesion is added that of a local peritonitis. A clinical distinction is not always possible between these localized infections and infections of the general peritoneal cavity. Most general infections are indirectly dependent upon the local ones, as already remarked. In some of these infections there may be no pain whatever until the peritoneum is reached. In a large proportion of the cases of acute appendicitis, for example, the ulceration, engorgement and beginning necrosis of the appendix may cause, and in fact usually do cause, no pain whatever. The patient may be apparently in perfect health until the appendix wall gives way, and the appendix pours its own contents, often followed by that of the cecum, into the abdominal cavity.

At this moment of perforation the patient is for the first time seized with the excruciating pain described in previous paragraphs. The importance of this fact in connection with appendicitis is very great. The conception of appendicitis in the minds of many is that the disease is always, from the very beginning of its internal changes, a painful one; that in many, if not in most, of the severe attacks, the initial symptoms are intra-appendicular. The chief question asked in such a case, as I have observed hundreds of times, is whether I think the appendix perforated. The fact is, that in almost every case of acute appendicitis the initial pain is caused by an extravasation of micro-organisms either through a gross perforation of the appendix or by gradual universal transudation. It is doubtless true in chronic appendicitis that the grumbling indefinite pains, irregularly colicky, of moderate severity, are dependent upon changes in the interior layers of the appendix with painful paroxysms of the appendix itself. Many of these minor changes in the appendix give rise to no pain or other symptoms. The moment, however, this slow and unnoticed disease reaches the peritoneum, then pain invariably arises.

In ulcer of the stomach no pain or other symptom may exist. The sudden pain of perforation in such a case may cause the greatest doubt as to its source; so in ulceration of the duodenum and intestine, and in many other unsuspected lesions, which result, through perforation, in the sudden and widespread peritonitis of the second group.

<sup>1</sup> Read before the Obstetrical Society of Boston, Nov. 19, 1901.

In the infections confined to the gall bladder the symptoms are usually more definitely localized than in the other diseases of this group already considered. The pain in cholecystitis is caused at first by overdistention of the gall bladder from closure of the cystic duct, which, in turn, is caused by infection and swelling of the mucous membrane. This early pain is spasmodic in character, from the paroxysmal efforts of the gall bladder to empty itself. The later pain of a necrotic and ruptured gall bladder caused by the rapid flooding of the right upper quadrant, extending sometimes to the whole abdomen, is excruciating and continuous.

Infections of the Fallopian tubes so closely resemble those of the appendix that the analogy is almost perfect. The tube, however, differs from the appendix in that it never becomes necrotic; moreover, in the advanced stages of extreme dilatation, it is but rarely perforated. Sometimes, however, fluids confined to the lumen of the tube by closure of its uterine and its fimbriated extremities overcome the obstruction at the peritoneal end, and escape suddenly into the pelvis. Such a course simulates clinically the escape of fluids from an obstructed and inflamed appendix through a perforation in its walls. No accurate discrimination can be made between an appendicitis and a right-sided salpingitis by the kind of pain and the manner of its onset. Even when all the facts are considered, the differential diagnosis will be impossible.

In simple intestinal obstruction the onset of pain is usually sudden; sometimes it begins like the giving way of an attachment or of an adhesion. It is paroxysmal,—usually mild and infrequent in the beginning, violent and oft-repeated as the obstruction becomes more and more complete. The suddenness of the pain will depend upon the suddenness and the completeness of the obstruction. When, for instance, a band or a kink or a foreign body only partly obstructs the fecal stream, the paroxysms are mild and the pain comparatively slight. When the obstruction becomes complete, however, the pain is excessive, the spasms longer and more frequent.

The secondary symptoms upon which the diagnosis of acute intestinal obstruction without necrosis must rest are distention, vomiting, spasmodically contracted coils visible through the abdominal walls, absence of fever. Careful inquiry will bring out some reasonable theory as to the probable cause. Previous attacks of localized peritonitis and abdominal operations will suggest a band or a kink; the history of a tumor will suggest pressure and faulty position of a coil; emaciation in middle life, malignant disease; ascites, tubercular stricture.

Even in the simple mechanical obstructions without necrosis of the whole coil, fecal extravasation may take place, when, for instance, a band cuts through the intestines, or small areas become necrotic under pressure, or when the bowel is so excessively distended that it bursts. In such cases the intermittent spasmodic pain becomes

the overwhelming agony of a general peritonitis.

Pedicle torsions in cases of ovarian tumor, movable kidney or wandering spleen are always accompanied by pain. It is of the severest character, usually of sudden onset, sometimes continuous, sometimes paroxysmal. The commonest torsion is that of the ovarian tumor pedicle. In many cases, as already mentioned, the obstruction to venous return results in an extravasation of blood into the tumor. If the capacity of the tumor is great, the chief symptoms may be those of hemorrhage which, following sudden pain in ovarian tumor, makes the diagnosis clear. If there is no extravasation of blood, the tumor is nevertheless tense, tender, and painful from serous exudations. Hemorrhage into the cavity of an ovarian tumor sufficient to cause symptoms is, however, not the rule, although the cyst contents are commonly more or less tinged with blood. In torsion of the wandering spleen, movable kidney and other solid tumors with long pedicles, hemorrhage never results. The pain in torsions is caused probably by the sudden interference with the circulation and beginning necrosis. In many cases of ovarian torsion the pain is in the beginning slight; as the twist increases, it becomes more severe. Though the final turn which completely cuts off the circulation causes the first attack of severe pain, yet the history will show slight attacks, similar, but less severe. The diagnosis of tumors with twisted pedicles must always depend upon other signs than pain. A history of tumor, a sudden enlargement and marked tenderness in that tumor, preceded or accompanied by pain, are sufficient to establish the diagnosis. Cases arise, however, in which no exact diagnosis can be made. Even when nothing abnormal has been suspected, the presence of a tender tumor in the lower abdomen, with a history of sudden pain, is sufficient evidence for a correct diagnosis of ovarian torsion. The diagnosis is not always so easy, however, for other lesions may be found when sudden abdominal pain leads to the discovery of a tender tumor. In several instances I have strongly suspected an ovarian torsion, and have, on exploration, found a salpingitis, an inflamed fibroid, a suppurating cyst, an extra-uterine pregnancy, or even an acute dilatation of the stomach.

Abdominal pain, neither preceded nor accompanied by other symptoms, sometimes has a suddenness of onset, a local severity, and a constitutional effect sufficient apparently to justify intervention. Yet exploration under these circumstances will sometimes reveal no abdominal lesion whatever. It is not uncommon, especially in children, to find acute abdominal pain with muscular rigidity dependent upon a pneumonia or a pleurisy. The cause of abdominal pain in such conditions is a matter of conjecture. It has been suggested that the pain is reflex, through the abdominal branches of the intercostal nerves. The respiration should be noted, the lungs should be examined, as a routine procedure, in all cases of

abdominal pain, and especially in children. I have seen four or five cases of acute pneumonia in children diagnosticated as appendicitis from the abdominal pain and the secondary rigidity dependent upon the pain alone. In one instance the appendix was removed on the strength of my diagnosis — which was appendicitis. The child had pneumonia; later an empyema, which was successfully operated upon.

Abdominal pain is occasionally present in other acute diseases, attended by high pulse and high temperature. Simple abdominal neuralgias, simple and painful functional disturbances of the intestine, occurring while the patient is suffering from the constitutional effects of diseases elsewhere, always raise the suspicion of some acute intra-abdominal lesion. I have seen, for example, symptoms strongly suggesting pancreatitis due entirely to a multiple septic pulmonary infarction. Painful abdominal symptoms occurring in the course of zymotic or other constitutional diseases must be scanned with especial care lest the patient succumb to the weight of the original disease with that of a useless exploration super-added. So in fractures of the femur one occasionally sees acute abdominal symptoms preceded by pain, the lesion being usually fat embolism, and infarction.

The most important zymotic disease to be ruled out when acute abdominal pain is present is typhoid fever. The occasional sudden onset of typhoid fever marked by abdominal pain and tenderness makes it of the greatest importance that the surgeon be on his guard, especially in communities where typhoid fever is prevalent. It is only in the early days of typhoid fever that the mistake is likely to be made. Sudden abdominal pain occurring in the second or third week of a well-recognized typhoid suggests at once the perforation of a typhoid ulcer and demands exploration. The pain of the initial attack of an atypical typhoid may suggest an appendicitis.<sup>2</sup>

An elevated temperature, a high pulse, an area of tenderness in the right iliac fossa, with rigidity, with the tumor of enlarged and infected lymphatics in the ileocecal mesentery, make in some cases of typhoid the diagnosis of appendicitis more than probable. The pain, however, is rarely an agony. In itself it is seldom so severe as to demand exploration under the mistaken diagnosis of appendicitis. Only those surgeons who operate in all cases of appendicitis "as soon as the diagnosis is made," will be likely to operate in the initial pain of an atypical typhoid.

Abdominal pain, whether functional and nervous, whether dependent upon lesions remote from the abdomen, is rarely accompanied by rigidity unless accompanied by peritonitis. Pain, even if severe, in an abdomen which permits the deepest palpation, can seldom be dependent upon a peritoneal infection, or at least upon an infection of serious moment. In infections of the peritoneum from extravasations, pain, even in the very beginning, is accompanied by abdominal rigidity. It

may be laid down as an almost invariable rule that absence of rigidity means absence of infection. So in the early days of typhoid, pain is unaccompanied by rigidity, and deep palpation is usually possible. Rigidity is absent or doubtful; tenderness slight and difficult to localize. Tumor is always obscure. Careful inquiry in such a case will often show, preceding the pain, a history of malaise, headache, nose-bleed, or some deviation from the normal.

Space will not permit even the briefest allusion to many other lesions in the abdomen which cause pain. The scope of this paper includes the discussion of only those manifestations and accompaniments of pain which demand surgical treatment, or which, on the other hand, suggest caution and bid the surgeon to refrain from operating. Particular emphasis must be given those functional disturbances in which pain leads the too zealous operator to useless or worse than useless exploration.

Functional pain is of frequent occurrence, and often severe. The distinction between pain that is apparently functional, and pain that is dependent upon organic lesions, may be difficult, or even impossible. Too often pain is attributed to functional disturbances when it is really caused by organic disease. On the other hand, simple functional pain may be regarded as owing to serious organic lesions. The difficulties of differentiation may be great. The most experienced are often deceived, especially in the study of organs like the stomach, which are frequently affected both by functional and by organic disease; so, too, the discrimination between a neuralgia and an obstructive colic, especially when the pain is at or near organs frequently the seat of both — between a gastralgia and a biliary colic, an acute right-sided oöphoritis or salpingitis and an appendicular or intestinal colic. The discrimination is always important, for we may be omitting a necessary operation or performing an unnecessary one.

The commoner of simple functional disturbances are gastralgia, nephralgia, oöphoralgia, simple intestinal colic from gas.

Pain caused by simple mechanical obstruction — though after relief of that obstruction no perceptible lesion exists — can hardly be included in the functional pains under discussion. Gastralgia is often intensely painful. Though the word *gastralgia* is in its meaning limited to a purely functional pain of the stomach, yet doubtless gastric pain, precisely similar to a functional gastralgia, may be due to organic disease.

I have never been able to place much reliance upon the symptom *gastric pain*, in making a differential diagnosis between such organic lesions as ulcer and cancer, for example, or in distinguishing between organic and functional causes for that pain. The diagnosis rests always upon other evidence. Pain relieved by taking food, for example, is said to be the pain of ulcer; a similar pain, aggravated by food, the pain of cancer. In my experience gastric pain and distress

<sup>2</sup> See page 29 Boston Medical and Surgical Journal Jan. 9, 1902.

are often instantly relieved by taking food or drink. Such a pain is usually functional. On the other hand, a pain which is aggravated by food is usually that of malignant disease, though it may be simple indigestion.

One must be cautious in estimating the value of pain as evidence of disease, especially in emergency surgery. He must not—I mean to say—underestimate it. In acute emergencies he may call a perforation and spreading peritonitis an intense gastralgia; in chronic diseases a gastric or cancerous ulcer the functional pain of chronic dyspepsia. The error of undervaluing pain in gastric surgery leads to costly delays: the error of overvaluing it, to occasional unnecessary explorations. In the surgery of the right upper quadrant and of the epigastrium, the weight given pain should be great, for in many, if not in most, of the lesions of this region of the abdomen, pain, of one sort or another, is a constant, a distressing and a significant symptom. In connection with other evidence the pain will, in the majority of cases, lead directly to the lesion. Pain, however, without other significant signs, must, when situated in the upper abdomen, be scanned with the greatest care. And yet persistent and severe pain alone, in the absence of other signs, may require exploration. Pain in the kidneys suggesting stone so strongly as to justify operation is by no means infrequent. I have operated upon several cases in which the history was almost unmistakable, and in which nothing abnormal was found. Even with abundant detritus in the urine, and a prolonged history of severe paroxysmal renal pain, I found the kidney in one patient absolutely free from calculus. Renal colic must therefore be most carefully studied before an organic origin can be safely admitted. The only positive evidence is an unmistakable x-ray demonstration. In doubtful x-ray views, one is as likely to find the kidney free from stone as not.

Persistent, unbearable nephralgias are so frequently relieved by exploration and division of the renal capsule that operation for simple pain is often as beneficial as nephrotomy for calculus. The error to be avoided in connection with renal pain is fruitless exploration before serious disabilities have arisen.

Functional renal pain must not be confounded with the pain of appendicitis. The initial perforation of an appendix situated high up may strongly suggest a right renal colic. I have, however, never met with serious confusion in this respect. The tenderness, rigidity, vomiting, and constitutional effects of perforation have always made the diagnosis clear. The physician should not persist in the diagnosis of renal colic when the signs of a beginning peritonitis are present.

The chronic pains so frequently observed in the ovarian region are of great importance. Acute sudden pain in the right lower abdomen, with rigidity and tenderness and constitutional disturbance, may mean, in women, acute appendicitis, extra-uterine pregnancy, hematosalpinx, or salpingitis. Such pain, with such accompanying

symptoms, always justifies, and, indeed, should always demand, immediate intervention (in the absence of distinct contra-indications). Chronic and persistent pain in this region may mean organic lesions of ovary, tube, appendix or intestine. Discrimination between organic lesions of these organs and simple functional disturbance is extremely important. This discrimination must rest largely upon the pain, its character, its mode of onset, its persistence, and its mode of cessation. Correct interpretation of the pain, however, is often impossible. It is in many cases real and dependent upon organic disease. The diagnosis will rest upon the history and the location of the pain, the possible causes given by the history.

Without physical evidence of the lesion the diagnosis is often in doubt. Usually exploration is indicated by pain alone, after this symptom has been borne as long as it can be borne. An incision in the right linea semilunaris gives access to appendix, tube and intestine, and the lesion found can be remedied.

As a rule, functional pain makes little impression of gravity upon either physician or patient. It lasts over long periods of time. Exploration is finally resolved upon because the patient is out of patience with it. Sometimes the cause is found and removed—more often nothing is accomplished beyond a demonstration of its functional origin.

Functional pains of the abdomen are by no means infrequent. They include the intermittent, the spasmodic, and the distressing pains of gastric and duodenal disease, the gastralgias, the intestinal colics dependent upon various functional disturbances of digestion, ovarian neuralgias, neuralgias of the sensory nerves of the abdomen, hysteria and the like. Analogous to these sometimes terrific pains are those of the passing of renal and biliary stones. Although the pain in these lesions is paroxysmal, it is not neuralgic in the sense that there is no definite cause for it. Like the pain of intestinal obstruction, that of the passing of a renal or a biliary stone is severe in the extreme. No abdominal pain can compare with it. The ordinary doses of opium or its derivatives have no effect whatever. In many cases complete anesthesia must be resorted to. It is important to recognize, therefore, the functional pain of the abdomen already described and the obstructive pains of hepatic and renal colic; the former, in order that no unnecessary exploration may be made; the latter, in order that the surgeon may be guided to operations for relief at a time most favorable for intervention.

There is a well-marked and characteristic variety of abdominal pain which every experienced observer will have seen in neurasthenic women, or, for that matter, in neurasthenic men. No form of abdominal pain not dependent upon acute and grave disease is of greater importance, for this persistent, annoying, and apparently unbearable symptom, though not classed as urgent or even as serious, leads probably to more useless, not



to say harmful, operations than any other single symptom. The patients are as a rule women, and invariably neurasthenic. Ten years ago a one-sided pain, running into, toward or from the region of the ovary, led almost invariably to the removal of that ovary. After convalescence from this operation, the pain would appear perhaps in the other ovary, which would be removed for the same reason that the first was. After convalescence and temporary benefit from the second operation, the pain would appear perhaps in the right upper quadrant, and be referred to a movable kidney. Fixation of the kidney would be followed by indefinite and obscure pain along the course of the colon, or, more probably, by recurrence of previous pains, which the patient, after heroic measures, would be less able to endure than in the beginning. Her last state would be worse than her first.

When the patient—usually a woman of vivid imagination, perhaps well nourished, rosy cheeked, and apparently in perfect physical condition—complains of abdominal pain, appearing first in one place and then in another, disappearing temporarily under one method of treatment, and reappearing under another, the surgeon who is especially inclined to the appendix will regard a right-sided pain as appendicitis; the gynecologist, perhaps, as a right ovarian affection; he who is interested in movable kidney, as a right movable kidney. The neurologist will look upon the case as one of neurasthenia, the pain as a manifestation of that extraordinary condition. The disappearance of pain which almost always follows the appendectomy, the ovariectomy, the nephrorrhaphy, the nerve-treatment, is a brilliant tribute to the diagnosis and to the treatment. Unfortunately, however, the pain soon returns and perhaps in a severer form.

A word of warning should be written against the too ready use of the knife in these cases, especially in connection with the removal of normal ovaries. The removal of an appendix—even if it is a normal one—sacrifices no useful organ; it may in the future be regarded even as a wise prophylactic measure. The fixation of a movable kidney, if it does no good, can hardly do harm. The removal of an organ like the healthy ovary, the influence of which upon the whole physical and mental makeup can hardly be overestimated, cannot but do harm. Radical operative measures in the neurasthenic should be considered with the greatest care, and especially normal ovariectomy for obscure abdominal pain. The surgeon may be less conservative in operations which, if they do no good, are likely to do no harm.

No case comes more frequently to the notice of the abdominal surgeon than that of the neurasthenic woman, with her terrible and unbearable pain. The symptom-complex, the history, the physical examination, all make conspicuous the diagnosis of neurasthenia. He who yields to the temptation to operate on one ovary will observe a temporary benefit—the pain will disap-

pear, only to return, however, at some other point in the abdomen.

He who removes the appendix will have a similar experience, and so he who fixes a movable kidney. The cause of this pain is a general one. The pain itself is but one of the numerous manifestations of neurasthenia. Such cases should be referred to the neurologist. When the neurologist has exhausted his resources, he may then refer the patient to the surgeon.

The truth of these statements will, I think, be admitted by everyone who has operated upon similar cases. The temporary benefit after the removal of an ovary is in many patients the result of suggestion; in many just as much benefit would follow a simple incision through the skin. One must be extremely careful in giving the proper weight to abdominal pain in neurasthenics, man or woman. The success of no operation should be confidently predicted.

I have already referred to the pain of a renal and biliary colic. This pain is of the greatest severity, and usually indicates clearly the cause. At times, however, the local symptoms attending these colics will be such as to suggest a peritoneal infection. Indeed, the peritoneum is sometimes infected by extravasations above the stone. There is usually, however, no rigidity. If there is tenderness, it is after the passage of the stone, and results from injury to the mucous lining of the duct, and, in biliary colic, from overdistention of the gall bladder. The confirmatory signs of renal stones or of gallstones must be found in the history of the patient, and in examinations of the urine and of the stools. From the pain itself little can be judged, except from its direction, the pain caused by a gallstone usually extending into the back or into the shoulder blade, that of a renal stone into the groin, right testicle, or right lower extremity, in which latter case the testicle is usually retracted. Attacks of renal and biliary colic can be rarely mistaken. It is only the unusual varieties that suggest other lesions; varieties in which perhaps the passage of the stone is slow, the pain of moderate severity, attended perhaps by rigidity, tenderness, and possibly fever.

In the consideration of abdominal pain, the patient himself must be taken into consideration—whether he is neurasthenic, imaginative or phlegmatic; whether his pain is quickly forgotten; whether he sleeps without opium, or whether the pain is relieved by very small doses of morphia or by a placebo. The severity of the pain can be estimated somewhat by the severity of the accompanying symptoms and signs. These have already been commented upon.

Simple pain, without perceptible or perhaps imaginable cause—a pure neuralgia—either really exists or is the product of imagination. I visited almost daily during the last years of his life an aged physician who had held his hand upon his right iliac fossa most of the time since 1851. He was convinced by the ever-present pain that the bowel would burst unless he supported it by firm pressure of the hand. He was a



calm, reasonable, unimaginative man. At the autopsy nothing abnormal could be detected. Unless pain of this kind be attributed to neurasthenia or to imagination it must be a simple neuralgia. Such a history would today undoubtedly lead to exploration and removal of the appendix, whether apparently diseased or not.

In some cases, especially when there is habitual constipation and flatulence, it seems reasonable to conclude that pain may be the result of an overdistention of the colon, especially the cecum, with gas. During operations in the right iliac fossa I have observed the cecum tightly distended, even after apparent thorough preparatory emptying by cathartics and enemas.

If it is thought advisable to use morphia or its derivatives, a reasonable idea of the severity of the pain can be gained, as already stated. In some cases the severity of the pain may be tested by distracting the patient's attention. A patient who is writhing about the bed, with loud cries, and who immediately quiets down and answers questions until her attention is again attracted to her symptoms, who falls asleep during her paroxysms, is probably one who exaggerates her symptoms.

The importance of gauging the patient's ability to bear pain is great. The attending physician, who has known the patient perhaps for years, is the best judge of the real amount of suffering. The consultant, who sees the patient for the first time, and then perhaps for only a few minutes, may be entirely deceived. A fair estimate of the value of pain can always be gained by the accompanying and confirming signs of abdominal lesions. Rigidity of the abdomen cannot be simulated beyond detection. Moreover, such rigidity cannot possibly be lessened by effort on the part of the patient. Exquisite tenderness cannot easily be feigned, or, if it is feigned, it can easily be detected by diverting the patient's attention. Fever and rise of pulse do not, of course, admit of malingering or of exaggeration—so, too, the signs of faintness. Acute pain alone is never a sufficient indication for exploring the abdomen. There must be at the same time signs confirmatory of its grave significance. Indeed, it would never be possible for the surgeon to see the patient early enough to operate before the existence of some such confirmatory signs. The violent pain of an intestinal perforation is so quickly followed by rigidity, tenderness, nausea, vomiting, and other symptoms of shock, that no surgeon could possibly get to the bedside before they appear. Pain may, therefore, be said never to be alone a sufficient indication for exploration even though the time of its onset would be the most favorable time for intervention. Its value is chiefly as a guide to the seat of the lesion and to the general characteristics of the lesion. Extensive experience with the lesions causing abdominal pain will emphasize more and more the importance of this symptom.

The treatment of abdominal pain has already been considered in the foregoing paragraphs. In

connection with acute abdominal lesions the treatment of pain is the radical treatment of those lesions. The only real significance of pain, as I have already stated many times, is in guiding the surgeon to some lesion the surgical relief of which will be successful in proportion to the promptness with which it is afforded. The great lesson to be learned is that surgical intervention, to be of any avail, must be prompt. If that relief could be given the moment pain first calls for it, there would be no more brilliant chapter in the history of abdominal surgery than that of acute abdominal emergencies. At the present time there is no more deplorable chapter. The greater the experience of the surgeon, the greater his dread of acute abdominal symptoms. It is in this field almost exclusively that his disasters lie. He knows when he is called that his efforts are more than likely to be unsuccessful, and no one knows better than he when his introduction into a community is likely to be followed by failure. Were it not for the occasional successes, even in the face of unfavorable symptoms, he could have no heart whatever in this branch of surgery.

The surgical treatment of pain, therefore, is the surgical treatment of abdominal emergencies. The value of time has been preached for years. Unfortunately, it is still necessary to reiterate its great importance. When patients are seized with sudden unbearable pain, the first thought of the physician—long before the appearance of other symptoms—should be surgical intervention. The surgeon should be on the alert when such pain occurs—ready with his instruments to take advantage of the first confirmatory sign of disaster.

#### CONCLUSIONS.

When a patient has been seized with sudden severe abdominal pain—

(1) The pain should not be masked by opiates before the surgeon has an opportunity to see the case.

(2) The previous history, accompanying symptoms, and physical signs must be carefully considered.

(3) Careful examination of the thorax and abdomen in all cases of pain should never be omitted.

(4) When hemorrhage is suspected, the abdomen should always be explored. If the patient is in collapse and the pulse apparently too weak to allow the patient to undergo exploration, preliminary infusion of salt solution should be made into the veins or under the skin.

(5) When the pain is excruciating and the abdomen shows signs of infection, exploration should be made at the earliest possible moment.

(6) The seat of the initial pain, as described by the patient and his friends, is a good guide to the incision, when, from other symptoms, the surgeon is in doubt.

(7) The history and signs other than pain must be relied upon for exact or reasonably positive diagnosis.

(8) When some of the rarer abdominal lesions are suspected, exploration should nevertheless be made. Such an exploration may be useless, but if resorted to as a routine procedure in all cases, the greatest possible number of lives would be saved.

(9) When there is the least question, the genuineness of the pain should be tested as thoroughly as possible.

(10) The pain of an atypical typhoid, of a pleurisy, of a pneumonia, must be guarded against. When typhoid is prevalent in a community the greatest care must be taken lest the surgeon be misled by the pain of such a case.

(11) The observer must be on his guard lest he confuse the pain of simple functional disturbances with that of organic disease; he must rely upon the accessory signs of the organic lesion.

(12) When in grave doubt as to the significance of pain and other symptoms, the benefit of the doubt should be given the patient by surgical exploration.

(13) Finally, when no exploration is regarded as justifiable, pain should be controlled by morphia, by hypnotics, or, if necessary, by general anesthesia. With very few exceptions, however, — chiefly cases of renal and biliary colic — the pain that demands general anesthesia demands operation.

#### SOME POINTS OF VALUE IN THE DIAGNOSIS OF DISEASE OF THE ABDOMINAL ORGANS.<sup>1</sup>

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I wish to bring to the notice of the society a few points that have been of value to me in the diagnosis of various obscure conditions met with in the abdomen.

In acute disease within the abdomen exact diagnosis of the pathological condition is often of the utmost importance to the life of the patient. Upon our decision is determined whether we may temporize, treating the prominent symptoms only, or whether the condition is such that surgical interference alone can save the life of the patient.

Many cases lie on the borderland between medicine and surgery, ready on the change of a single symptom to be transferred to one department or the other.

In acute diseases of the abdomen we have a very different problem to consider from that which confronts us in chronic diseases. The question is not whether by operation we can make our patient more comfortable, or whether we can prolong a life of moderate usefulness by a severe operation, but whether our patient will die if we do not advise operation.

As someone has written recently, there is a time in every case of appendicitis when operation would save the life of the patient. This saying is still more true in all cases of intestinal

obstruction, due to twists of the intestines or bands of inflammatory tissue which have caused an obstruction of the bowel. What we have to consider is whether it is probable, and in rare cases we may be justified in saying whether it is possible, that such conditions exist in the patient under observation.

The more cases I see the more am I convinced that in doubtful cases an exploratory laparotomy should be performed. I have too often seen death follow an operation which has been too long delayed in cases where early and prompt interference would undoubtedly have saved the patient.

The wide experience in laparotomy during recent years in our hospitals demonstrates that in a few cases the operation has been performed without avail, in that no surgical disease has been found. In some of these cases, probably in most, careful consideration, even after the operation, does not demonstrate clearly how the error could have been eliminated without the operation. To offset the few cases in which an unnecessary operation has been performed, we could all report cases in which an operation too long delayed, or a post-mortem examination, showed the presence of a condition that might have been cured by early interference.

As an illustration I may cite a paper that I published, upon "Abscess of the Liver," in 1899.<sup>2</sup> A report was made upon 17 cases of abscess of the liver. In 10 the abscess was the direct result of an appendicitis which had not been recognized. I give one case as a type.

Man, age 21; three years before entrance to the hospital he had acute appendicitis in a neighboring city. According to his statement there was a tumor in the right iliac region, with severe abdominal pain. For two weeks before he entered the hospital his appetite had been poor and there had been some headache. Four days before he entered he had severe pain in the right iliac fossa, which caused him to stoop forward when standing. Nausea and vomiting followed the pain, and in a few days several chills. Expression anxious, mind clear; general abdominal tenderness, most marked in the right iliac region; spleen not enlarged; leucocytes 8,000; no plasmodium.

In this especial case the history of malaise suggested typhoid: he had worked in a region where malaria was common, therefore the chance of typhoid and malaria made us ignore the bright mental condition and the positive evidence of localized tenderness in the right iliac region. Numerous chills soon followed, with marked leucocytosis, slight jaundice and enlargement of the liver. Death followed in three weeks, and post-mortem examination showed appendicitis, with a small mass of pus, occlusion of the portal vein by purulent phlebitis, multiple abscesses of the liver.

Our chance of saving his life was lost when we did not recognize the importance of the early attack of pain in the right iliac region. Operating at the end of the first week in the hospital, when

<sup>1</sup> Read before the Clinical Section of the Suffolk District Medical Society Jan. 15, 1901.

<sup>2</sup> St. Paul Medical Journal, June, 1899.

the leucocytes were 23,000 and he had had several chills, might have saved his life.

Further, in many cases an exploratory incision may help the patient, though we find some malignant disease which makes operation impossible or inadvisable; by our examination we learn for a certainty that in operation only can we hope to find help for our patient, and so may lay out for the sufferer the wisest plan to allay pain by the judicious use of morphin or some other opium derivative.

As in recent years a certain amount of success has followed the various operations for malignant disease, we may feel more and more justified in giving an opinion in favor of an exploratory incision.

I have always remembered with regret two cases that were admitted to the hospital as habitués of the opium habit. Both complained of abdominal pain. One was an old soldier who had taken opium previously for a painful stump, though for several years he had taken no opium; the other was a very healthy looking young girl. Both struggled hard to stop the opium, adding to their pain the dreadful longing for the drug. In each case an autopsy within a few months showed cancer of the stomach. In such cases an exploratory laparotomy is certainly not useless, though such a procedure was not considered at the time that these cases were under my observation (1883).

Taking up now various signs and symptoms:

**Pain.**—No symptom is less reliable than the history of pain. First, the susceptibility of the individual to pain is most varied. One individual gives up entirely to pain that is probably not more severe than the pain in another individual who considers it as of no importance.

Since writing this paper I was called to see a young woman of 32 years, who was the cook of one of my patients. I saw her on Thursday afternoon. On the previous Tuesday she had not felt well, and in the evening she walked from the Back Bay to Huntington Avenue to consult a doctor. She did her work on Wednesday. All Wednesday night she vomited and had a good deal of abdominal pain. She cooked the breakfast on Thursday, then went to bed. When I saw her she said she had but little pain. Temperature, 101°; pulse, 120; spasm, tenderness and dulness in the right iliac region. She wished to wait for her own doctor, as she did not favor my diagnosis of acute appendicitis, with the advice for immediate operation. An operation Thursday night showed a gangrenous appendix with perforation. Fortunately she recovered.

The pain of a "Crise gastrique" may undoubtedly be far more severe than the pain of an intensely acute peritonitis. In fact, it is my experience that a sense of distress and discomfort in the abdomen, occurring in a patient previously healthy, is of far graver import than sudden acute pain without the other important symptoms which I shall speak of. Further, the situation of the pain is of very little value in locating the seat of

the offending lesion. In appendicitis, for instance, the seat of the pain is usually at the umbilicus, or higher, at the epigastrium. I have myself had for a period of two years many attacks of appendicitis, and I was invariably warned of the approach of an attack by a moderately severe colic, with its apparent maximum force at the epigastrium. This pain rarely prevented my attending to my professional duties until vomiting and local tenderness forced quiet in bed.

We realize still more the slight dependence to be placed upon the history of pain when we consider that in hospital practice, at all events, many patients are so benumbed by the severity of their disease, that they certainly do not speak of pain as a prominent factor if it is present. In many cases of severe abdominal lesion the absence of pain seems to me comparable to the absence of pain after severe burns, the result of shock, and so noticeable when we think of the really excruciating pain which follows some slight burn of the hand.

Of course, an acute attack of pain must always receive our most careful attention, as it is usually our first sign in perforation and allied conditions, but pain may not be a symptom of serious import. Further, what is of the greatest importance, the absence of pain, or, rather, perhaps, the absence of any expression of pain, must not be considered as of much value in the elimination of acute abdominal disease.

Nausea and vomiting are of the greatest importance, and are symptoms which should invariably be carefully considered in the history of any abdominal case. It is rare, very rare, to find any acute disturbance of the peritoneum, whether from inflammation or mechanical violence or from twist, without the occurrence of vomiting. On the other hand, these symptoms are not so common in colic or abdominal pain from other sources. In the latter class of cases the vomiting depends upon the severity of the pain, and not upon any local disturbance, *per se*.

Another point of value in the history, as suggestive of some abdominal disease, is the occurrence of constipation, obstinate in character, in a patient who has not previously suffered from sluggish action of the bowels. Two years ago I had under my care a boy of 12 years. He had never been very rugged, and for several years had suffered much from constipation. The bowels never moved except when strong cathartics were given, and he had apparently no power to aid evacuation by abdominal pressure. Dec. 17, at night, he complained of abdominal pain, and vomited. On the 18th he went to school. On the 20th he was not at school and appeared rather indolent. He had some abdominal pain, but no tenderness, and a cathartic was given by his mother. On Dec. 21 much abdominal pain, no dejection, was restless, constantly tossing about the bed. Examination showed a tumor, soft in character, in the lower part of the abdomen, which simulated a full bladder. Catheter showed that the bladder was empty; the question arose as to whether the

tumor was a hernia, intussusception or some intra-abdominal tumor, kidney being considered. Operation showed that the obstruction was due to a large cystic kidney, which had become jammed down into the pelvic, causing acute obstruction. It is probable that the enlarged kidney had for years been responsible for the chronic constipation, as after removal of the kidney the boy made a rapid recovery and has not suffered from constipation since the operation.

A subsequent review of the case disclosed a history of a sudden attack of bloody urine two years before. This was undoubtedly due to some acute obstruction in the ureter from twist or other mechanical cause.

Two other cases have been under my care: one an old lady who had suffered from "intestinal gout" and finally had complete obstruction. Operation showed a carcinoma of the large intestine. The other a man of middle age, who had a cancer in the lower part of the large intestine.

Though the careful history of a patient is of course of importance, the physical signs are far more valuable in enabling us to arrive at a correct diagnosis, and I will briefly review a few of the conditions that we may diagnose by inspection, palpation, auscultation and percussion.

The general appearance of a patient suffering from acute abdominal disease may be of much importance. The bright mental condition is of much value in distinction to the hebetude seen in many febrile conditions; the pinched and anxious facies; the absence of, or the limited excursion of, diaphragmatic respiration; while the patients usually lie very still in bed, and in many instances, though not always, bend the knees to relieve any extra-abdominal pressure from contraction of the muscles.

By "inspection" we search carefully for any irregularity suggestive of abdominal tumor. The pulsation of the normal aorta is, of course, often seen from the epigastrium to about the level of the umbilicus, but a pulsation transmitted to the abdominal wall at or below the umbilicus is always suspicious. A woman once presented herself in the Out-Patient Department who had great enlargement of the abdomen, with marked pulsation at and below the umbilicus. The lower half of the abdomen was flat and a percussion wave suggested free fluid. Further, she gave a history that water had been withdrawn, and she had been told that she had abdominal dropsy. Largely on the ground of the pulsation the diagnosis was made of a tumor resting upon the aorta. I had not seen then, nor have I seen since, a case of ascites, in which pulsation was transmitted through the fluid to the abdominal wall. Though the case was obscure, laparotomy was performed, and a large cyst of the broad ligament was removed.

A similar pulsation is not unusual in the upper part of the abdomen dependent upon a tumor resting on the aorta, but in these cases the greatest care must be exercised not to consider the normal pulsation of the aorta as of pathological significance.

In the diagnosis of intestinal obstruction we should always look for peristaltic contraction of the bowel, which may be plainly seen by the movement of the abdominal wall. When present it is a sign of much importance.

It is usually not difficult to make the diagnosis of excessive fat in the abdominal wall, but mistakes are made, as occasionally laparotomy is performed before the surgeon discovers that the tumor is subcutaneous, and that the condition, though perhaps pathological, is not remediable by the knife. One very simple method of diagnosis makes such a mistake practically impossible, namely, that a mass that may be taken up between the two hands is subcutaneous and not within the abdominal cavity. Furthermore, when all the subcutaneous tissue is taken up between the two hands, we at once see that there can be no tumor in the abdominal cavity. This method has often been of much assistance to me, especially in the differential diagnosis of a moderate amount of ascitic fluid.

Tenderness must be sharply distinguished from pain, and is of paramount importance in the diagnosis of any and all acute inflammatory processes in the abdominal cavity. Tenderness is as important to the surgeon in arriving at the diagnosis, as pain is to the patient in inducing him to call the doctor. When spasm, distinct and sharply localized, is added to tenderness, the surgeon must have strong reasons to the contrary to justify him in deciding that there is no acute local inflammatory process.

In many a case of appendicitis the evidence of tenderness and spasm at McBurney's point clinches the diagnosis, though the general condition of the patient may be good and the initial pain of the attack has passed. We must always remember that in one place in the epigastrium, just below the xiphoid cartilage, there is always tenderness, or, rather, perhaps, a specialized disagreeable sense of discomfort. Spasm is of even greater importance than tenderness, as it is just as evident in a patient semiconscious or delirious as in one whose mental condition is bright. It is the final and most important sign looked for by the surgeon in a doubtful case after his patient has been fully etherized. Spasm is as evident under full etherization as in the conscious patient. Spasm is the reflex, not the voluntary contraction, of the overlying muscle to prevent contact of the examining fingers with the tender parts lying beneath the hand.

In all cases of colic and abdominal pain the absence of localized spasm and tenderness are most reassuring that the trouble is not dependent upon any inflammatory process. In children especially it is the first sign to look for: in the absence of tenderness, deep pressure may often be made if the patient's attention be distracted.

In children it is always my custom to ask the mother or nurse to press fairly hard in various parts of the abdomen, and especially over the appendix, to determine whether there is tenderness. This may give pretty accurate information in case

the child is at all alarmed at the presence of the doctor, and therefore inclined to cry at any manipulation.

In palpation of the abdomen we should always remember that hard masses of feces may closely simulate tumors of serious import; further, that such masses are often retained in the intestines, though the patient may have had many small, loose dejections.

It is not always easy to make the differential diagnosis between small pleural effusions and enlargement of the liver, or some inflammatory process between the liver and the diaphragm, subdiaphragmatic abscess. There is one simple method of diagnosis in such conditions that is of much value. Determine accurately by percussion the upper line of dulness on the chest wall, then let the patient take a full inspiration and hold the breath. Continue a light regular percussion while the patient inhales, and note carefully whether there is a change in the percussion note during the full inspiration. If the dulness is due to fluid in the pleural sac there will be but little change in the upper area of dulness, whereas, if the mass be beneath the diaphragm, good pulmonary resonance will be found at the point previously dull, as the expanded lung will extend downward over the subdiaphragmatic mass. This method can usually demonstrate the existence of an enlarged liver, or the rare and always obscure condition of acute suppuration between the liver and the diaphragm. I do not think that this method of examination is in common use, yet it is a sign of much value.

The last sign to which I wish to call your attention is to my mind of the greatest importance in the diagnosis of intestinal obstruction; in fact, I have written this short résumé of data as to the diagnosis of abdominal diseases chiefly to bring up this method of diagnosis for discussion, namely, the importance of an empty rectum as suggestive of intestinal obstruction when there has been no movement of the bowels for several days. Of course the value of this sign is much increased if, as is usually the case, cathartics and enemata have been given previously without satisfactory results.

My attention was first called to this sign many years ago. I was called to see a man about 40 years old, who had abdominal pain and had had no movement of the bowels for three days. He had taken several doses of cathartic medicine and numerous enemata without avail. No vomiting, no fever, no abdominal tenderness or spasm, no rise of the pulse. Digital examination was made on the ground that the trouble might be due to feces impacted in the rectum, but no feces were found, and the finger had a trace of blood on it when withdrawn. I did not then recognize the importance of this sign. Two days later the man was operated upon and a complete obstruction of the bowel was found dependent upon a volvulus.

Since then I have invariably made a rectal examination in cases that suggested obstruction of the bowel, and feel that an empty rectum is of great importance in the diagnosis of this condi-

tion. The finding of blood is of great importance in corroborating the suspicion caused by the discovery that the rectum is free from feces. In consultation I often find that no rectal examination has been made. I have talked with a good many surgeons as to my opinion of this sign in diagnosis, and have not found that others attach the importance to this method of diagnosis that I believe its value demands.

Examination of the blood may give us most important evidence, and should not be omitted when opportunity offers for such a test. In acute inflammatory diseases with exudation, leucocytosis is almost invariable. Exceptions occur, but not often; for instance, in severe acute septicemia leucocytosis may be wanting, in a class of cases in which rise in temperature may not be found. Cases of this variety are from the pulse, and the general symptoms evidently very ill, so that the absence of leucocytosis cannot lead to error if we only remember that in such cases leucocytosis may not exist. Aside from these cases, in rare exceptional cases, leucocytosis may not be present. Fortunately, the blood count is of much value in the differential diagnosis of two diseases whose symptomatology may be similar in the early stages, namely, typhoid fever and appendicitis. In the former disease, in uncomplicated cases, the leucocytes are diminished in number, usually under 7,000, and not rarely under 6,000 (according to Dr. R. C. Cabot's analysis of cases, two-thirds of the cases under 7,000). In the latter case leucocytosis is the rule. It is certainly a most important rule that in a case of doubt leucocytosis should make us very suspicious as to the existence of a simple uncomplicated typhoid fever.

Of course, the Widal reaction is of much importance if it is found, and the Widal reaction may be present very early in the course of typhoid fever.

Again, the blood count is of much value in the elimination of malaria when chills of doubtful etiology are present; in malaria or in typhoid fever the leucocytes are below the normal in number. The malarial organisms, if present, determine the diagnosis.

### Clinical Department.

#### ACUTE PERFORATION OF A MALIGNANT ULCER OF THE PYLORUS RESEMBLING A CASE OF ACUTE APPENDICITIS.<sup>1</sup>

BY E. A. CODMAN, M.D., BOSTON.

*Surgeon to Out-Patients, Massachusetts General Hospital, and Assistant in Clinical and Operative Surgery, Harvard Medical School.*

ON Christmas evening, Dec. 25, 1901, I was called to the hospital to operate on a case of probable acute appendicitis.

The patient was a strongly built man of 51. He was evidently in great pain, and his look was

<sup>1</sup> Read before the Clinical Section of the Suffolk District Medical Society, Jan. 15, 1902.

that characteristic of some severe abdominal lesion. His temperature was  $104^{\circ}$ , and his pulse rapid but of fair quality. He gave the following history: Has always had good health. For one week has not been feeling very well, but has been at work. Yesterday afternoon at about 3 o'clock was taken with sudden pain, at first in the lower part of abdomen and not localized at any point. He began belching much wind and vomited severely and repeatedly. Abdomen became tender, and pain became localized just above umbilicus. Vomiting and pain continued through the night, and he has been getting worse all day. Bowels moved two days ago and daily before that. Have not moved since.

Physical examination showed the following points. The heart and lungs were negative. The whole abdomen was very tender and rigid, but the right half more so than the left, and the upper half more so than the lower half. There were two points which were especially sensitive: one in the region of the gall bladder, the other at the usual situation of the appendix. That in the region of the gall bladder was the greater. So great was the rigidity that it was impossible to feel any cake. Rectal examination was negative. There was no jaundice. The white count was 38,000.

I decided to operate for the acute epigastric peritonitis, and could make no better diagnosis than that it probably was not appendicitis. I expected to find a perforated gastric ulcer or an acute gall bladder.

Under ether a deep indefinite mass could be felt in the region of the pylorus. I made a vertical incision immediately over this. On opening the peritoneum there was a free flow of thin pus. A culture taken from this showed in 12 or 14 hours diplococci and several chains of streptococci. The appearance inside the wound was exactly like that seen on opening into the inflammatory area about an acute appendix— injected and adherent coils with scattered flakes of fibrin. There were many little flakes of fibrin on the omentum and no definite adhesion walling off the abscess. Though the mass was high I began to feel that it was an appendix after all, for I have twice found the appendix adherent to the gall bladder. I therefore pulled up the caput coli, and was rather surprised to find the appendix normal, except for its involvement in the slight general peritonitic process.

On separating the light adhesions in the upper end of the wound about the mass, the region bounded by the liver and stomach and transverse colon was exposed, with the pylorus and first part of the duodenum forming its floor. These structures bulged into the wound and formed the tumor which had been palpable. As the tumor was more or less covered with fibrin and the structures about it edematous, I could not make out whether it was a tumor of the pylorus itself or whether the pylorus and duodenum were raised by a mass underneath them. On top of the tumor was a diphtheritic looking spot about the size of a

thumbnail. This spot gave a sensation very like fluctuation. There was no hardness suggestive of malignant disease, nor did the history or looks of the patient suggest it; the gall bladder was normal. I then felt that it must be a deep abscess, probably pancreatic. A finger in the foramen of Winslow partially settled the question, for I could take the pylorus—about the size of a small mandarin—between it and my thumb. Even then the tumor, though movable, seemed connected with the head of the pancreas. It was not hard and there was nothing to contradict its being a perforated ulcer backed by inflammatory tissue. Whether it was this condition or whether it was a cancer of the pylorus it seemed certain that at any rate there was pyloric obstruction. I did not know whether to simply drain the region or to do gastro-enterostomy. Excision was evidently too much. If it were perforation from ulcer, drainage from the stomach might favor healing and avoid the formation of a fistula; if it were obstruction from malignant disease, the same operation would be indicated. By entering the lesser peritoneal cavity through the transverse mesocolon I could explore the pancreas in case the supuration started in that organ. Simple drainage, though it might be temporarily safer, would not relieve the condition.

I therefore flushed out the region between the transverse colon and the liver very carefully, pulled out my walling-off gauze, and turning the transverse colon up, went through the mesocolon and did a lateral anastomosis between the posterior gastric wall and the first part of the jejunum. There was no fluid in the lesser peritoneal cavity. The small bowels seemed fairly free from peritonitis and were not distended. The lower portion of the wound was closed and two wicks left in, one to the opening of the foramen of Winslow and the other to the diphtheritic patch of fibrin on the pylorus. The whole operation took between one hour and one hour and a half and the patient left the table in fair condition.

For the next three days he was tolerably comfortable, slept fairly well, his bowels moved well and he retained his nutrient enemata. The abdominal condition improved except for the spreading of the infection in the wound, necessitating removal of the stitches. Tenderness and rigidity were progressively less; there was no vomiting and little pain. From the time of the operation, however, the temperature and pulse remained up and the condition of the patient suggested general systemic poisoning. He grew weaker, became quietly delirious, then apathetic, and died at the end of the fourth day.

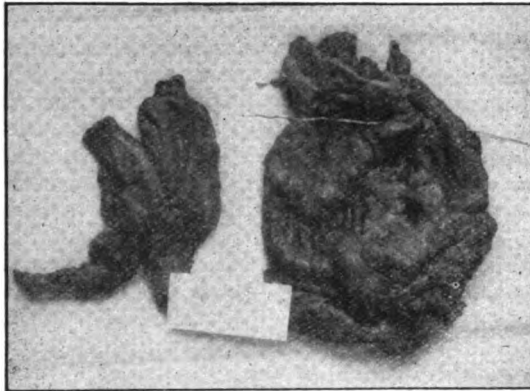
Examination through the wound showed that the conditions there were not greatly different from those last seen at the operation. There was no fluid in the greater or lesser peritoneal cavity unless in the pelvis, which was not examined. There were no collections of pus and the anastomosis was intact; the adjacent peritoneal surfaces were in good condition. There was a coating of fibrin about the wicks and the tumor.



The diphtheritic patch was still present on the pylorus. The pyloric end of the stomach and the first two parts of the duodenum were removed, and a perforation found in the centre of the suspected patch which just admitted an ordinary probe and was concealed by the fibrin surrounding it.

As far as I am aware it is most unusual to find perforation into the peritoneal cavity in the early course of gastric cancer. Since the operation in this case I have been told by Dr. W. A. Putnam of Cambridge that the patient had consulted him two weeks before for slight abdominal pain, which was easily relieved by counter irritation. Except for this he had made no complaint of anything.

In the consideration of acute epigastric peritonitis I have never seen the question of acute perforation from gastric cancer, which was previously unknown, mentioned. Osler quotes Brunton, saying that of 507 cases of gastric cancer at autopsy, 17 showed perforation. Ellis,<sup>2</sup> in 1857, reports 2 cases which were not unlike the above.



This photograph shows the pylorus opened on one side. The whole interior, with exception of a small part of the normal mucous membrane, is occupied by an ulcerated carcinoma. In several places on the surface of the ulcer there are thin areas which show gray necrotic bases. Through one of these the probe finds a way to the peritoneal surface in the diphtheritic patch. The excised anastomosis is also shown.

### BRONCHOPNEUMONIA IN EPIDEMIC FORM.

BY WILLIAM WATSON MCKIBBEN, M.D., WORCESTER, MASS.

*Ex-House Surgeon Free Hospital for Women, Brookline, Mass.;  
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At 11 P.M. Friday, Dec. 27, I was called to see Margaret D., a child of three years, having what the parents and friends regarded as whooping cough. On entering a small room, in which the air was extremely foul, five children were seen huddled together in two beds. The coverlets

were soiled with excreta, and the ceiling was wet from leakage of rain through the roof. All five children were coughing, but attention was first directed to Margaret.

The mother gave a history of cervical abscess at three months; this was incised at Memorial Hospital, where the ultimate prognosis for life was regarded as poor. Since then the child had been frail and anemic, but had no cough till two weeks ago: however, it was not until two days ago that the cough assumed a serious aspect. At this time the other children also began coughing, but this in no way resembled pertussis.

Examination of Margaret showed skin cold and moist. Temperature 103° F.; pulse 180, weak and irregular, respiration 70, accompanied by expiratory moans. Alae-nasi dilated. Lips cyanosed, cough frequent, with facies expressive of pain. At the bases of both sides of back were areas of dulness with bronchial breathing. Auscultation gave fine and coarse moist râles over the whole front and back, more marked in certain areas. The other four children presented much the same signs, only to a less degree. May D., aged 17 months, showed bilateral consolidation between scapulæ and vertebræ. Margaret died at 8 o'clock Saturday morning. John, aged two months, developed Cheyne-Stokes respiration toward evening, and died at midnight.

Sunday morning the neighborhood was thoroughly aroused, and demanded immediate removal of the three remaining children, but the hospital authorities, under advice of the Board of Health, refused admission. The laryngologist could find nothing pathological in the throats, nor was there any evidence of stenosis of the larynx, but to satisfy the Board of Health cultures were taken for laryngeal diphtheria. These cultures proved negative. Annie D., age 17 months, remained comatose Saturday and Sunday. She and the other twin had been having copious watery discharges from the bowels for three days. Sunday a Widal test for typhoid fever proved negative; the urine was a fever urine, containing urates and a trace of albumin, but no casts or renal cells. At the same time sputum was obtained from the three living children, and carefully stained for tubercle bacilli, but none were found; pneumococci and pus organisms were discovered in abundance. Monday the three patients were sent to the hospital, where they entered upon a rapid convalescence.

In the cases of bronchopneumonia at the Babies' Hospital, in which tubercle bacilli were found, Holt also discovered pneumococci. He regards this of special interest, as it explains what is frequently remarked clinically, that in cases of tuberculous bronchopneumonia the symptoms cannot be distinguished from the simple form. Osler, to prove its infectious nature, cites examples of the epidemic form of pneumonia depending on a specific micro-organism.

One day last February two brothers and a sister, suffering from lobar pneumonia, were admitted to the Worcester City Hospital. This, with a small infection on the Boston Floating Hospital

<sup>2</sup> Extracts from the Boston Society for Medical Improvement, vol III, p. 116, and vol. IV, p. 109.



in the summer of 1899, when I was superintendent and resident physician, represents my personal experience with epidemic pneumonia, but I have learned from physicians of several such epidemics here in Worcester during the past ten years.

### Reports of Societies.

#### SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting, Jan. 15, 1902. DR. G. C. SMITH in the chair.

DR. HENRY JACKSON read a paper on

#### SOME POINTS OF VALUE IN THE DIAGNOSIS OF DISEASE OF THE ABDOMINAL ORGANS.<sup>1</sup>

DR. J. C. MUNRO: In pursuit of Dr. Jackson's paper as to the advisability of the early recognition of symptoms in acute abdominal affections, I have roughly analyzed the last consecutive 150 laparotomies that I have had while on duty at the City Hospital. I have purposely not included any cases seen in private practice.

At the hospital we are apt to have late and hopeless cases for three reasons at least: The patients of the class that seek aid there are not likely to summon a physician, in many instances, until too late. A very small class of physicians will not send their cases until they become hopeless, and another small class are averse to surgical interference under almost any circumstances. These classes do not, however, account for all of our late cases. Of the 150 cases, 47 were operations for various lesions (fibroids, cancer, etc.), in which the question of acute inflammation did not enter. Of these there was no death referable to operation or to failure in the time of operation, barring, of course, the great question of earlier interference in malignant growths, which does not concern us here.

Of the acute abdominal affections where a timely operation would or might have influenced the result I will report the exceptional types first. Of the following there was one case each: Penetrating wounds of the vagina and rectum (criminal), where the patient concealed the condition for 10 days; gunshot wound of the abdomen and lung; sloughing gumma of the liver; general sepsis with abdominal symptoms. All died except the gumma, but no criticism as to the failure of early recognition of symptoms can be made.

In the next group there is reason to believe that more careful watching or more accurate diagnosis in the early stages would have made a marked difference in the results. In this group are: Intussusception of 4 days' duration in a baby, the bowel being gangrenous; gastric ulcer that had been perforated 48 hours; general

gonorrheal peritonitis that had been going on for days, and a volvulus with gangrene of unknown duration. All but the last 2 died, but they were rescued only by most desperate measures. There were 2 cases of obstruction by bands: 1 recognized early, recovered; the other, sent to us in a moribund condition, died. Of 3 colostomies, 1 with obstruction of 1 day recovered; 1 obstructed 7 days recovered, but only after several days of anxiety, and a third, with obstruction of many days, died. Six cases of typhoid were opened, 3 for exploration and 3 for perforation. They were all desperately ill and died sooner or later. Five cases of extra-uterine pregnancy are in the list. Two of these, septic before operation, died, but 1 of them might have lived had I not failed in diagnosis myself. The 3 recoveries were seen early. Four cases of acute purulent salpingitis were sent to us with histories of days and weeks of acute symptoms. One with an acute general peritonitis in addition, died. Three abscesses of the liver from portal phlebitis were opened with ultimate fatal result, but here there can be no criticism unless we take issue with the advisability of allowing a patient to have several attacks of acute appendicitis before submitting to operation, and then only after several days of acute inflammation.

When we come to the commoner lesions of the gall bladder and the appendix we see the need of early recognition of acute symptoms most plainly. Of 7 gall bladder operations 3 died, each one being acutely and generally septic. Each one had had months or years of repeated, relapsing suffering, and in each a timely operation should have been successful. Of 65 cases of appendicitis in the list, 24 were operated upon in the so-called early stage, a fair proportion being typical interval cases. Of the 24, 3 died—a large mortality at first sight. One of these (reported elsewhere), that died a month or more after operation from a subphrenic abscess, should be ascribed to the operation, and full responsibility is assumed, although the patient had been bedridden for weeks and weeks with recurrent attacks of acute inflammation before operation was allowed by the medical attendant. The second death was due to hemorrhage from a gastric ulcer during convalescence; and the third case, in which the appendix had been removed, was probably not a case of appendicitis at all, but of some fulminating toxin poisoning, as autopsy failed to show any cause of death. Against these 24 early cases are 41 acute cases, the acute symptoms lasting from 36 hours (the shortest) to days and weeks. There were 6 deaths—also a large mortality until we analyze the histories. Two were moribund at entrance (1 also having a general peritonitis), 2 had general peritonitis, 1 had a volvulus with gangrene in addition to and caused by the appendicitis, and 1 died probably from embolism (a very rare experience). The mortality in these late cases, however, does not tell the whole story. Fecal fistula, portal phlebitis, sepsis, hernia, and prolonged convalescence all make the appeal for early

<sup>1</sup> See page 225 of the Journal.

recognition and transfer to the hospital most urgent.

To briefly recapitulate: Out of 150 laparotomies, 60 were done later than they should have been done if ideal conditions were possible, and undoubtedly lives and much suffering could have been saved. And if from this list of 150 we subtract the so-called nonacute cases, 47 all told, we are confronted with the fact that approximately 60% of our acute cases, as they reach our accident rooms, have been delayed too long, by days or even weeks, before being given into surgical care.

DR. HARRINGTON: As Dr. Jackson has said, two of the very important symptoms which we ought to pay attention to — especially in the early cases, because in the late cases, when the symptoms get bad, nobody makes a question but what an operation should be done — are muscular rigidity without great distention and the non-passage of fecal matter or gas from the rectum. I think, in any case, after 24 hours of effort to open the bowels, efforts which you are satisfied with yourself as being thorough, if you do not get gas or fecal matter, especially the former, one should not hesitate much longer, even if other grave symptoms are wanting. Frequently you get cases of obstruction in which the other evidences are wanting in the early stages. If you get an obstruction very low down in the intestinal canal the patient may go on a long time quite comfortably without vomiting and be able to take a good deal of food, because the intestines, by distending, may take care of food and gas for a long period. Of course the converse is true; if you have an obstruction very high up in the intestinal tract, you may get fecal movements and gas, with a complete obstruction. In these last cases vomiting comes early and is marked, while distention is more gradual and less in amount. The most desperate case I ever saw and one in which I did not think there was any chance at all of recovery, a case of apparently complete obstruction of the bowels, in which the hands were cyanosed, face pinched, abdomen tremendously distended and the pulse hardly perceptible, a woman with a large fibroid which had caused the obstruction, recovered. I was greatly surprised the next day to find her alive. I saw the case in consultation and refused to operate, but recommended a high injection. The doctor gave it, and the woman passed enormous quantities of fecal matter and gas and was about her work again in a short time. I never saw a more unexpected recovery. That leads me to another point, and that is this: there is a condition of the bowels in which you get all the symptoms of complete obstruction, and that is in idiopathic dilatation of the colon. There may be complete obstruction due to the distention of the sigmoid flexure and sagging or twisting of the intestine, but a rectal tube sometimes may be made to enter and relieve the distended gut of its contents.

DR. J. T. BOTTOMLEY: Having had but a comparatively limited experience in abdominal sur-

gery, I feel my inability to discuss this paper worthily. I would like, however, to mention one or two little points which have been of some use to me in arriving at a diagnosis. What I shall say will be rather a supplement to than a discussion of Dr. Jackson's paper.

I remember being much impressed some years ago by a brilliant diagnosis of Dr. Munro's. Without going into details, his diagnosis of an acute appendicitis as the cause of an existing purulent infection of the liver was made on his demonstrating tenderness in the appendix region by deep pressure where moderate pressure failed to bring out the sign.

Two cases which I have recently seen, and which I shall relate briefly, illustrate the importance of making this deep pressure, when possible, in abdominal examinations.

A car conductor, age 30, gave a history of a sudden attack of hiccoughs 7 years before; this was followed by well-marked epigastric pain and several severe intestinal hemorrhages within 24 hours. Since that time he had been well until his present attack, with the exception of a more or less constant "weak feeling" in the epigastric region. His present illness began 2 days before I saw him, with pain and distress in the epigastrium; his doctor found him without fever, with a normal pulse and with marked epigastric tenderness; the pain ceased after 24 hours, but the tenderness and distress continued; 36 hours after the beginning of the attack he had a sudden and very severe chill lasting 30 minutes. I saw him 4 hours later. His temperature was 101°; his pulse 110-120. His abdomen was moderately tender in the epigastric region over an area half as large as the palm of one's hand. What pain and distress he had were located there. A careful examination of the rest of the abdomen disclosed tenderness in the appendix region, but only on deep pressure. Rectal examination was negative. He was sent to the hospital with a diagnosis of appendicitis which was not at first accepted. Two days later a deep-lying, chronically inflamed appendix with beginning gangrene was removed. He has been very well since that time; even the "weak feeling" in the epigastrium has disappeared.

A woman, age 28, for a number of years had had attacks of epigastric pain, abdominal tenderness and vomiting every three or four months. She had seen several physicians and one surgeon; a diagnosis of gastric ulcer had been made. In her last attack a physician, whom she had not previously employed, found that pressure in the left iliac region caused her to complain of pain in the appendix region. This called his attention to that point, and upon deep palpation there he found a tender point and thought he could feel an enlarged appendix. I saw the case with him, and thought there was sufficient ground for operation and removed a very chronically inflamed appendix, which ran upwards and inwards and was very adherent to the surrounding tissues. This happened 20 months ago, and the woman has since had none of her "gastric" attacks.

This second case not only brings out the importance of deep pressure in an examination, but calls attention to a sign which I have noticed several times, namely, that in some cases of appendicitis pressure in the left iliac region causes the patient to complain of pain or tenderness referred to the appendix region.

One other point to which I would like to call attention is the fact that the signs obtained by percussion of the abdomen—particularly those indicating dullness—are not reliable. I have seen reliable, competent men percuss out an area or areas of abdominal dullness only to find upon operation nothing corresponding in the cavity.

I have twice operated on children with typical symptoms of intussusception even to the sausage-shaped tumor which I thought I could feel in the left iliac region, and have found apparently a normal state of affairs in the abdominal cavity. Both children recovered; but one does not enjoy such experiences.

DR. E. A. CODMAN: If I should judge from my own experience I could not rely on the value of the points spoken of by Dr. Jackson and by Dr. Harrington in regard to the absence of feces in the rectum or the occurrence of a good result from enema in obstruction cases. In the only 2 cases in which I can recall delaying operation for several hours after seeing a case of obstruction of the bowels, I was led to do so largely by the fact that in both cases I obtained a copious result from a high enema. Both cases were obstruction of the small bowel and both were fatal. One might perhaps have been saved by an earlier operation.

In regard to the point Dr. Bottomley has spoken of in percussion of doubtful abdominal cases where there is a question of free fluid, I recall 2 cases in which I was deceived by a large amount of fluid contents in the ascending and descending colon. The dullness in the flanks caused by this led me to think that a collection of fluid existed in the peritoneal cavity. Operation in one case and autopsy in the other showed the error. I have since noticed this condition in post-operative peritonitis cases in which there was partial obstruction or paralysis of the bowel. You can readily find the same flatness in the flanks in a patient who has just had a large high enema. As an example of difficult abdominal diagnosis I should like to report the following case of

ACUTE PERFORATION OF A MALIGNANT ULCER OF THE PYLORUS, RESEMBLING A CASE OF ACUTE APPENDICITIS.<sup>1</sup>

DR. F. B. LUND: I would like to confirm very strongly what Dr. Folsom has said, that if you wait for all the classical symptoms, you make mistakes. It is not always the same symptom which is left out. I have seen cases where the belly was full of pus without muscular spasm, though muscular spasm is important as an early symptom of acute peritoneal inflammations. In 1 or 2

cases I have accounted for it in that the pus started in the pelvis in some retroperitoneal position and worked up under the omentum so that the surface of the peritoneum was not involved. In those cases where the thing starts deep you get tenderness on deep palpation, and you are not prevented from deep palpation, as ordinarily, by the presence of muscular spasm. I think the point of greatest tenderness and greatest spasm is of great importance in pointing out the starting point of the trouble. In 95% of the cases it is in the appendix, but where the spasm and tenderness are greatest in the epigastrium it is wiser to incise over the epigastrium. I have been thus led to make the incision in the right place in 2 cases of gastric ulcer and 2 of pancreatitis where the spasm was greatest in the epigastrium and the trouble located there. In another case I came upon hemorrhage in ruptured spleen. The symptoms of intra-abdominal hemorrhage are so nearly those of acute peritonitis that you cannot always make the diagnosis between acute peritonitis and abdominal hemorrhage from rupture of an important viscus or vessel.

Another cause of muscular spasm which may lead to mistake in diagnosis of abdominal trouble is a dry pleurisy low down close to the diaphragm. I shall never forget a case seen when a student, where two or three eminent surgeons advised operation for appendicitis. The surgeon did not operate, and the case was given to the student for a clinical case. By that time 2 or 3 days elapsed and the student found the chest full of fluid, which the surgeon tapped, to his own great delight and the corresponding discomfiture of the other gentlemen. I also saw a case of general pneumococcus septicemia, one night at the City Hospital, where I was called to operate for a peritonitis. There was muscular spasm over the abdomen and a little fluid in both chests and fluid in the pericardium. I did not operate and the patient died. Through the influence of these 2 cases I subsequently lost a case which ought to have been operated. This was a case of appendicitis in which the appendix ran upward and outward under the liver. There was acute abdominal tenderness and spasm, and at the same time there was a pleuritis, and a friction rub could be heard. By laying too much stress on this pleuritis and deciding that the spasm was due to it I did not operate early, and 2 days later, when the patient was operated, a gangrenous appendix was found up under the liver. Whether I could have got that appendix by deep palpation I do not know. In case of doubt I think it is generally safer to operate. I have regretted not operating in a number of cases of acute abdominal lesions, and never have regretted opening the abdomen yet. I have done it twice for suspected rupture of the intestine without finding anything. Those patients both got well.

With regard to the emptiness of the rectum in intestinal obstruction, where the obstruction is high up, they certainly may have copious movements from the bowel below the obstruction.

<sup>1</sup> See page 228 of the Journal.

Last spring I was called to see a boy who had had intestinal obstruction 4 days. His belly was distended and everywhere tender. While I was preparing to operate he had 2 enormous movements with passage of gas, but we proceeded with the operation and found an absolute obstruction of the intestine by a band, so that there was a necrotic ring round the small intestine, high up. The boy made an excellent recovery. The movements had emptied the bowel below the obstruction.

A rare but very valuable early symptom of intestinal obstruction is localized distention of a coil of intestine. You rarely see the case early enough to see that sign. Of course, where the intestine is obstructed the distention begins immediately above the obstruction. Last August, in the hospital, we had a case of intestinal obstruction from a band. The child began to have pain at 7 A.M. At 10 o'clock localized distention of a coil of intestine was noted. Attempts to move the bowel with enemata were unsuccessful, and at 7 o'clock in the evening I operated and found a complete obstruction of the intestine by a band. There was no necrosis of the intestine, and it was very easy to divide the band and relieve the child. It was a very satisfactory case. If you can get a case early that sign of localized distention is certainly very valuable.

I do think that we all need to have impressed upon us the importance of continuous abdominal pain, especially unaccompanied by tenderness; if not relieved very soon by medical treatment a surgeon ought to see the case. There is no doubt a great many lives would be saved if that rule were carried out.

DR. MUNRO: Dr. Larrabee told me of this case 2 months ago, and a short time after that I was sent for to operate on an elderly gentleman who complained of acute abdominal pain and tenderness, due to a herpes zoster.

Dr. Folsom's remarks on the atypical signs I think ought to be borne in mind. I can recall a number of cases of acute purulent general peritonitis where there was no elevation of pulse or temperature, no distention, no spasm, no tenderness and no rigidity. The patients were sick and the operations were done on the character of the facies alone.

As to the question of percussion of the abdomen, I am personally very skeptical. For years I have been watching very closely most careful percussion by our best diagnosticians in that line, and I have very rarely seen the condition illustrated in the opened abdomen which was found outside by the percussion. I have seen free fluid very carefully percussed by our best diagnosticians when it was absent, and I have seen exactly the contrary. To me it plays the least important rôle in making the diagnosis of abdominal diseases. When a condition can be accurately percussed within the abdomen it can be told by palpation or other methods.

Dr. Lund spoke of pleurisy. I was in hopes he would go a little further and speak of lobar pneu-

monias with abdominal symptoms. I have been asked to operate for appendicitis a number of times, and once for a cholecystitis, but refused on the ground that the condition was lobar pneumonia with abdominal symptoms, and in each case a delay of 24 to 48 hours cleared up the diagnosis. The pneumonias have usually been central and difficult of detection. There have been spasm, pain, tenderness, etc., but something—I cannot say what—that is not quite characteristic of acute appendicitis has made me suspicious that we were dealing, not with appendicitis, but with pneumonia.

DR. H. F. HEWES: Dr. Lund states that the presence of severe and continuous pain in the abdomen is an indication for calling in a surgeon. This is true only when certain causes for the pain have been ruled out. Pain of the character mentioned is not infrequently our only early or emphatic symptom of an appendicitis or perforation or of some condition needing surgical interference. It is also, however, a not infrequent associate of such conditions as ulcer of the stomach, of dilated stomach with stasis of contents, or in cases of gastro-enteritis. I have seen severe continuous pain from ulcer, lasting 24 hours. Two cases of dilated stomach were operated upon by the surgeons during my term at the hospital. I agree that early diagnosis and often early operation are of the greatest importance in these abdominal cases, and that a surgeon should be called in every case where there is reasonable doubt, or where we are convinced that operation will benefit the case. But there are other means of diagnosis besides laparotomy, and these should be thoroughly employed before this is resorted to.

DR. SMITH: I should like to call attention to a class of cases not mentioned tonight, that is, cases of gastro-enteric catarrh, unaccompanied frequently with fever, but extreme tenderness over the whole abdomen, beginning particularly in the epigastrium and spreading quite rapidly until the entire abdomen is involved, with marked rigidity of the abdominal walls everywhere, and the pain of such an intense character as to require hypodermics of  $\frac{1}{4}$  gr. of morphia. In this connection we never should lose sight of the fact that we ought to have constipation in all these cases, and it is almost universal that we get it whether the trouble is surgical or medical; we get the constipation by virtue of the pain and the morphia, and it is unfortunate that we have to give morphia, because we are masking our symptoms by it. I think constipation is perhaps the least reliable of the abdominal symptoms. The rigidity in these cases is also very unreliable. Recently I have seen a few such cases, and during the last 6 months I can recall 2, 1 which Dr. Richardson saw with me and made the diagnosis of probable appendicitis, not because there was more marked tenderness in the region of the appendix than elsewhere, but on the ground which Dr. Lund and others have suggested tonight, that in a large percentage of the cases of appendicitis we have no really positive signs. The following day I asked Dr. Shattuck

to see it, and he thought the diagnosis was between gastro-enteritis and an appendicitis, but that it was impossible to make a diagnosis on the negative symptoms. But neither of these gentlemen advised exploratory operation, and this tenderness with pain persisted even longer than the case Dr. Hewes reports—about 96 hours, with obstinate vomiting all the time. There was no fecal vomiting, no movements of the bowels notwithstanding early small doses of calomel and early doses of salines. At the end of 96 hours a diarrhea began which immediately caused subsidence of all the symptoms, and the patient made a very excellent recovery in a few days, and had there not been a history of more or less dissipation in the way of eating, and in a young man whom some of us knew, we might have felt a little more uneasy about this case without operation. I speak of this case as equivalent to 2 or 3 others which I have seen during the past year, and which proved to be a gastro-enteritis with all the symptoms which are usually attributed to an appendicitis.

### Recent Literature.

*A Textbook of the Practice of Medicine.* By DR. HERMAN EICHHORST, Professor of Special Pathology and Therapeutics and Director of the Medical Clinic in the University of Zurich. Translated and edited by AUGUSTUS A. ESHNER, M.D., Professor of Clinical Medicine in the Philadelphia Polyclinic. Two octavo volumes of over 600 pages each; over 150 illustrations. Philadelphia and London: W. B. Saunders & Co. 1901.

The book before us, in two volumes of convenient size, is the outcome of various requests made the author to write a condensed textbook of medicine. It represents, therefore, essentially an epitome of the writer's more extensive work on "Special Pathology and Therapeutics." The translation has been carefully done by Dr. Augustus A. Eshner of Philadelphia, who has added such explanatory notes as he deemed necessary to the German text. The book in its final form is more comprehensive than most of its class, in that it includes a discussion of skin and venereal diseases, and certain neuroses of the sexual organs in men. With so wide a scope, it necessarily follows that the treatment of individual subjects is reduced often to extremely limited details. The illustrations are numerous and for the most part sufficiently good. This cannot, however, be said of many of the cuts of lesions of the spinal cord. The cord lends itself so easily to adequate diagrammatic representation of many of the diseases to which it is subject, that the crude and indistinct cuts so largely used in the book have small excuse. Following the German method, the translator has seen fit to make large use of capitals and italics in the text, a plan which has the advantage of calling attention to the more important points in a given subject, and the dis-

advantage of breaking up the symmetry of the page in a way unpleasant to the eye of the reader. We are inclined to think that no material benefit even to the hurried reader is gained by this arrangement. The book is admirably printed and well bound. With the weight of authority which the writer's name gives to the book, and the general smoothness of the translation, we have no doubt that it will meet with a cordial reception in America as it has in Germany.

*The Microscope and its Revelations.* By the late WILLIAM B. CARPENTER, C.B., M.D., LL.D., F.R.S. Eighth edition, in which the first seven and the twenty-third chapters have been entirely rewritten, and the text throughout reconstructed, enlarged and revised by the REV. W. H. DALLINGER, D.Sc., D.C.L., LL.D., F.R.S., etc., with 22 plates and nearly 900 wood engravings. Philadelphia: P. Blakiston's Son & Co. 1901.

Ten years have elapsed since the publication of the seventh edition of this noteworthy book on the microscope. The progress of knowledge in this decade has demanded fewer changes than were necessary in the revision of the seventh edition, nevertheless, the text has been carefully rewritten by Dr. Dallinger, with the assistance of collaborators in special fields. The volume in its new form is a bulky one of 1181 pages. It contains a vast amount of information regarding the microscope as a scientific instrument and the theory of its mechanism, with ample and excellent illustrations throughout. In fact, we suspect that everything known about the microscope, including its historical development, is contained in the pages of this really monumental work. In addition to this a large portion of the volume is given over to a consideration of the lower forms of animal life and their microscopic appearances. It is not necessary to enter into details of this well-known book, nor is it possible in the limits set for this notice. It suffices to say that it is encyclopedic in character, and that this later edition certainly sustains and increases the reputation it has long enjoyed. The work of the publishers is praiseworthy, particularly in relation to the illustrations, a number of which are reproductions by the heliotype process. Where colors are necessary they have been freely used, for the most part with excellent success. The book is to be warmly and especially recommended to all those who use the microscope, for it is certainly true that many microscopists are pitifully ignorant of the principles even, upon which their instruments are constructed.

*Experimentelle und Kritische Beiträge zur Händedisinfectionsfrage.* VON DR. RICHARD SCHAEFFER. Zwölf Tabellen und 4 Abbildungen auf 2 Tafeln. Berlin: Verlag von S. Karger. 1902.

This monograph of 110 pages relating to a much discussed and at the same time very important subject describes some careful laboratory work and

investigations of the writer. In connection with the work of Krönig, Hægler, and especially that of Paul and Sarwey, it is of considerable interest.

After a discussion of what is really meant by the term "absolutely sterile," and a review of the sources of error in the work of earlier investigators, Dr. Schaeffer describes in detail his work with the "hot water-alcohol" method of skin disinfection and tabulates his results. He then discusses the Mikulicz sublimate, schleich, lysol, lysoform, chinisol and other methods.

In summarizing his conclusions he states that the "hot water-alcohol" method, when sufficiently carefully followed, will so effectively sterilize the hands that there will be no more danger of wound infection resulting from this source than there is from the air, also that this is sufficient for practical purposes. In a way, the results strengthen the growing opinion that complete sterilization of the hands is an ideal condition not yet attained.

*Diseases of the Intestines.* By I. BOAS, Specialist for Gastro-Intestinal Diseases, in Berlin. Authorized translation from the first German edition, with special additions by SEYMOUR BASCH, M.D., New York City. Forty-seven illustrations. New York: D. Appleton & Company. 1901.

This is a good book and well translated. It presents the subject in a concise, practical and accessible form. Nothnagel's work has made subsequent books on intestinal diseases imitations, at least to a considerable extent, but Dr. Boas has introduced in his volume much that he has learned in his practice and, furthermore, has included recent literature. He brings the anatomy and physiology of the intestines into close relation with the diseases of this portion of the alimentary tract and thus adds much to the value of the knowledge presented. Theory and practice are combined.

The chapter on the dietetic treatment of intestinal disorders is straight to the point, and those on intestinal catarrh and constipation meet our expectations.

German views on appendicitis show the advance America has made in one branch of medicine, and at the same time the slowness with which our ideas are accepted abroad. The translator redeems this part of the book by a clear account of American opinions.

*Short Talks with Young Mothers on the Management of Infants and Young Children.*—By CHARLES GILMORE KERLEY, M.D., Lecturer on Diseases of Children, New York Polyclinic Medical School and Hospital; Assistant Attending Physician, Babies' Hospital, New York; Physician of the Out-Patient Department, Babies' Hospital, New York; Member of the American Pediatric Society. New York and London: G. P. Putnam's Sons. 1901.

This little book is, on the whole, superior to most of its class. It is well printed on good paper. The arrangement of subjects, however,

is poor. It is full of arbitrary statements on points which are certainly open to discussion. We feel that the author would have difficulty in sustaining some of his statements before a jury of his peers. All pediatricists would certainly not agree with him that "skimmed milk should never be given to an infant," that "a wet nurse should be decided upon only when all other means of nourishment fail," and that cream "should not be poured off or the milk siphoned from under it." We fear that although these arbitrary statements on points open to discussion may make the book most useful for the author to give to his own patients, they may also prevent other physicians from recommending it. The exercise basket and exercise pen recommended by the author are ingenious and meet a long-felt want. We know of no book of this sort which gives such sensible directions as to when to send for the doctor. Most of them tend to encourage the mother to try home treatment and to put off calling the physician. The advice to "send for the doctor when there are any indications of illness in the child which the mother does not understand," is certainly admirable.

*Anatomy, Descriptive and Surgical.* By HENRY GRAY, F.R.S., Lecturer on Anatomy at St. George's Hospital, London. Thoroughly revised American from the 15th English edition. In one imperial octavo volume of 1,246 pages, with 780 illustrations. Philadelphia and New York: Lea Brothers & Co. 1901.

This textbook of anatomy clearly maintains its place of popularity among the increasing number of rivals for favor. In spite of numerous changes and additions the volume retains essentially the bulk it has had for many years—a highly desirable attribute, in consideration of the use to which it is ordinarily put. In this latest American edition particular attention has been given to the portion on general anatomy and embryology. The section on embryology has been placed at the end of the book, instead of in its more natural and logical position, at the beginning. It is to be hoped that the editors may ultimately change this arrangement of the subject matter. The increasing importance attached to embryology in general textbooks of descriptive anatomy is a gratifying sign of the recognition of the close and hitherto too often neglected association of these closely correlated branches of science. The descriptive anatomy of the nervous system is an improvement over previous editions. We still note, however, the use of Fervier's misleading charts of cerebral localization, the various cortical areas being represented by small, sharply circumscribed circles over the brain surface. The present tendency is away from such sharp localization, and the student is apt to derive a false impression from these too diagrammatic figures. The illustrations have, in general, been improved and increased in number, and the book is sure of a continued popularity both among medical students and those who have passed beyond the student stage.



*Outlines of Physiology.* By EDWARD GROVES JONES, M.D., Lecturer on Physical Diagnosis in the Atlanta College of Physicians and Surgeons, and Professor of Physiology in the Dental Department of the same. Pp. 400, with 107 illustrations; 12mo. Philadelphia: P. Blakiston's Son & Co. 1901.

This small book, 400 pages, 12mo, has been to the reviewer interesting reading. The author acknowledges in his preface that brevity has been his "prime consideration," and yet the style is not that of a "quiz compend" nor has it pretensions of a larger work. The book is good of its kind, in fact, one of the best of the multitudinous small physiologies on the market. The introduction is clear; the space given to the physiology of muscle is too small, smooth muscle being hardly mentioned. The physiology of the heart is bad, no good explanation being given for the cause of the cardiac contraction, and what is given is poor and weak. A little more space might be given to the consideration of the coagulation of the blood, but one cannot expect to find a whole library in a small work of this kind. The chapters on digestion and respiration are simple and neatly expressed, while that on the nervous system can set an example for clearness and orderly sequence to many a larger work.

The letter press is clean and the binding of the ordinary description. As for the illustrations, they are all old familiar figures to us, having been culled from nearly every physiology written in the English language. Acknowledgment is always given, but they would have been vastly improved had they been withdrawn.

*Phototherapy.* By PROF. NIELS R. FINSEN, Copenhagen. Translated from the German edition and with an appendix on The Light Treatment of Lupus. By JAMES H. SEQUEIRA, M.D. (Lond.), M.R.C.P. London: Edward Arnold. 1901.

This small volume of 79 pages contains three papers on the following subjects: (1) The Chemical Rays of Light and Smallpox; (2) Light as a Stimulant; (3) The Treatment of Lupus Vulgaris by Concentrated Chemical Rays. A short appendix by Dr. Sequeira is added to the last of these articles. This book presents the salient features regarding the action of light and the scientific reasons for its use as a therapeutic measure. Particularly important at the present time are the suggestions regarding the treatment of smallpox by the exclusion of the violet and ultraviolet rays of the spectrum. The book should be in the hands of all those who are attempting to treat the disease by the empirical and somewhat crude methods generally in vogue. The papers on the Stimulating Effects of Light and on Lupus are of much more than passing interest. The whole subject of the therapeutic effect of light has not received in this country the attention it deserves. It is to be hoped the volume may do something toward stimulating this lagging interest.

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283 WASHINGTON STREET, BOSTON, MASS.

THE ETIOLOGY OF CANCER.

THE annual report of the Cancer Commission of the Harvard Medical School was given last week at a meeting of the Boston Society of Medical Sciences. A number of important papers were read by the various investigators who are engaged, under the Croft fund, in the study of cancer etiology. The present situation of this research is interesting from many points of view. The work accomplished in this community during the past two years has been wholly negative in its results, in the sense that an increasing doubt has been thrown upon the parasitic origin of the disease, as urged by certain foreign investigators, and upon the pathological significance of so-called cell inclusions. At this meeting, to which reference has been made, a long series of admirably conducted experiments was narrated by the various writers, all of which went to show that our search for a cause of cancer has not been furthered and is not likely to be by a continued prosecution of research along this line. So far as we are aware no other group of men employed in this work has been so unanimously positive in its disbelief in the significance of the disputed histological findings. It is not for us to say whether this attitude is justified or not, but we hope and have no reason to doubt, that the results of the study which have led to this point of view will be so forcibly placed before the public mind that future work may be directed into more profitable channels. It is an unfortunate scientific necessity that demands not only the rigid investigation of assertions, often made on imperfect evidence, but also the absolute demonstration of the falsity of those assertions. The parasitic theory is an attractive one, but if it is false and inadequate the sooner it is laid to rest the better for the ultimate solution of the problem. If, on the contrary, it still has supporters whose opinion must be con-



sidered, its denunciation, without conclusive evidence, is a fatal scientific blunder. So far as an unprejudiced observer may judge in so technical a matter, it appears certain that this theory of the parasitic origin of cancer has lost ground steadily during the past year, and is likely to give place, in the near future, to investigations of a wholly different character.

At a meeting of the Pathological Section of the Liverpool Medical Institution held the latter part of last month, the subject under discussion was cancer. Mr. H. G. Plimmer and Mr. H. J. Stiles were guests of the society on that occasion, and contributed to the interest of the evening by an animated disagreement as to the true cause of the disease. Mr. Plimmer, whose name is associated with the much disputed bodies found in cells, was urgent in the reiteration of his belief that these bodies were the cause, advancing in support of his contention that they were constantly present in cancer and not in other diseases, that they were apparently of highly organized structure, and that they might be cultivated outside the body. Mr. Stiles, on the other hand, and with him Dr. Nichols of Boston, and his colleagues would be in substantial agreement, saw no justification for these assumptions on Mr. Plimmer's part, and reduced the cell-inclusions to various stages of unessential nuclear modifications. Whatever may be the truth or falsity of these adverse opinions, it is clear that no fundamental criterion has yet been offered on either side, and that the old difficulty of the burden of proof stands in the way of a satisfactory settlement of the question on these lines. Plimmer and his followers say, you have not disproved our proposition to our satisfaction; until you do we shall regard what we have found as a true and sufficient cause. Nichols, Stiles and the growing school of skeptics assert that Plimmer has never proved his point, that these bodies have anything to do with cancer—and here the matter at present rests. The difficulty evidently must be met by going deeper in search of a cause which will unify and explain the present contradictory findings. At this same meeting in Liverpool, it is of interest to note that Plimmer and Stiles were agreed that the microtome and the microscope had exhausted their possibilities, and that further work must be prosecuted along experimental lines. What these lines are to be some far-seeing mind must discover. In the meantime it is a source of congratulation that a vast amount of preliminary work has been done which need never be repeated. If we may venture a prophecy in such a matter we are disposed to think that the physiological chemist and the student of pathological metabolism will have a voice in the final solution of the mystery.

#### ANIMAL EXPERIMENTATION.

WE are sorry to record the fact that within a few days the subject of vivisection will again be brought before public notice in a legislative hearing. We may anticipate the usual arguments, the same personal attacks and the inevitable clouding of the main issue by the introduction of unessential details. The opponents of the proposed legislation, at least, know what to expect, and we have no doubt their arguments will be heard with the same respect and deference which has on several previous occasions led to the defeat of the passage of restrictive laws.

It is, however, altogether unwise to neglect any legitimate means of bringing before the public the facts of the matter at issue, as understood by leading citizens, both lay and professional. This has been done this year for the first time by Prof. H. C. Ernst of the Harvard Medical School. Dr. Ernst has collected and had printed in book form the statements of various remonstrants, called out at the legislative hearings in the spring of 1901. It is an admirable series of opinions from persons of such diverse interests as President Eliot of Harvard University, Bishop Lawrence of Massachusetts, and twenty-eight others, representing most varied departments of intellectual work. Many of the statements are brief, but in all instances, cogent expressions of opinion; some of them are careful arguments with a review of facts, among which Dr. H. P. Bowditch's and Dr. W. T. Porter's addresses, and Dr. H. C. Ernst's summing up for the remonstrants stand out as models of close reasoning.

It is stated in the introduction to the book that its publication was determined upon in response to the request on the part of friends of research for an authoritative document on the question of animal experimentation. The publication, as it has finally appeared, is not a shorthand report of what was said at the hearings, but a more carefully compiled expression of opinion of those who spoke and of others who for various reasons did not speak or were unable to be present. It represents, therefore, the matured judgment of thirty men and women standing high in the social and intellectual life of the community, and as such demands a widespread recognition. The public at large is sure to take a just view of this as of other questions, about which it can have almost no first-hand knowledge, if all the arguments are fairly and candidly presented. It is to accomplish this end that the volume before us has been prepared, and we strongly urge our readers to further a cause which means much to the medical profession by procuring the book for themselves, and spreading the fact that it exists among the uninformed and wavering.

**TWO BAD METHODS OF FIGHTING THE ANTIVACCINATION CRAZE.**

UNDER the above caption there has recently appeared on the editorial pages of one of our contemporaries a statement which is likely to mislead. In this comment reference is made in the following words to a man whom we suppose to be Dr. Immanuel Pfeiffer of Boston: "In an eastern state another 'unvaccinated' crank was permitted by the board of health to go among the smallpox patients, and then without disinfection to mix with crowds, and to wave his infected handkerchief in public meeting 'in the faces of his friends,' etc."

It is true that this man was allowed by the Board of Health to go among smallpox patients. It is not true that he was permitted without disinfection to mix with crowds, to wave his handkerchief, etc. It appears to us, therefore, a distinct reflection and a wholly unmerited one on this Board of Health that any such statement should be published in a medical journal. A definite statement of the entire occurrence appeared in our editorial pages on Feb. 20, under the title "The Case of Dr. Pfeiffer." So far as we have been able to learn no evil result whatever to others has followed his visit to the smallpox hospital, due, no doubt, in a measure, to the careful precautions taken before he was allowed to return to the city and to mingle with people. As an object lesson the case has proved of the very greatest value.

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**A NEW MEDICO-MILITARY JOURNAL.**

WE spoke at considerable length of this journal, then about to be published, in our issue of Aug. 22, 1901. The comments then made cover our views of the desirability of such a journal, and need not be repeated. It is unique in character, does not intrench upon other established journals, and should be successful in filling a distinct place, owing to the lack of a similar publication in English. We could wish, however, for a better application of the printer's art than the numbers hitherto published show.

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**MEDICAL NOTES.**

**GREGORY TESTIMONIAL BANQUET.**—The date of the testimonial banquet to Dr. Gregory has been set for Thursday evening, April 17. A committee of invitations has been appointed which is certainly unique, in that it is composed of one member of every class taught by Dr. Gregory, 50 in all.

**SUPPORT OF FAMINE CHILDREN IN INDIA.**—It is said that American missionaries are responsible for the support and industrial training of 16,000 famine children in western India.

**BOSTON AND NEW ENGLAND.**

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Feb. 26, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 47, scarlatina 22, measles 160, typhoid fever 8, smallpox 29.

**COMPULSORY VACCINATION IN RHODE ISLAND.**—A compulsory vaccination act was passed in both houses of the General Assembly of Rhode Island on Feb. 19. The act provides that every child shall be vaccinated before the age of 2 years, under penalty of \$5.00 for every year during such neglect; that, if a board of health deems it necessary, it may enforce the vaccination of all inhabitants at public expense. Refusal entails a fine of \$5.00. Inmates of hotels, manufacturing establishments, hospitals, asylums and correctional institutions may be vaccinated if the board of health so orders. A certificate from two physicians that a person is an unfit subject exempts. Revaccination may be ordered.

**A BILL TO PERMIT AUTOPSIES AT INSANE HOSPITALS.**—The Committee on Public Charitable Institutions gave a hearing Feb. 24 to Dr. Arthur H. Harrington, superintendent of the Danvers Insane Hospital, for an amendment to the law of such a character as to permit autopsies in State insane hospitals. Dr. Thomas Dwight, Dr. J. Collins Warren and Dr. Frederick C. Shattuck appeared as remonstrants; Dr. Arthur H. Harrington and Dr. Owen Copp, executive officer of the State Board of Insanity, spoke in favor of the bill.

**OPENING OF RELIEF STATION.**—The new Relief Station in Haymarket Square was opened for work last week. A number of persons requiring immediate attention were treated the first day.

**NEW YORK.**

**BILL TO ABOLISH LOCAL BOARDS OF MANAGERS OF INSANE HOSPITALS.**—In defiance of the most enlightened public opinion, and notwithstanding the opposition of a considerable number of members who are of his own party, Governor Odell has succeeded in rushing through the legislature the bill introduced at his instigation, to abolish the local boards of managers of the state hospitals for the insane, and concentrate their powers practically in his own hands. This is regarded by the better class of citizens as a distinct step backwards, as it is felt that by transferring the powers of the local boards to the State Commission in Lunacy, consisting of only three members, a much less faithful, constant and efficient supervision of the hospitals will be secured. By the provisions of the bill the care of the 23,000 insane patients, and an annual expenditure of at least \$5,000,000 are so placed as to be made capable

of an active force in partisan politics; so that such power as is given in it might, in the hands of an unscrupulous governor, whose object might be to build up a political or personal machine, not only be dangerous to the people of the State in general, but disastrous to the unfortunate inmates of the institutions. Among the bodies which exerted their influence to defeat the bill were the State Board of Charities, the State Charities Aid Society, and the Charity Organization Society, and a formal protest against its passage was sent by Bishop Potter and a number of other of the most prominent clergymen of various denominations. In the latter it was said of the bill: "It will centralize all administration, which experience and philosophy unite to declare should be in a democracy as far as possible localized; it will deprive the State of the voluntary, spontaneous service of a considerable number of men and women of large experience and philanthropic character; it will tend to lessen public interest in the charitable work of the State, which ought to be increased rather than lessened; and it will build up a service in the hospitals which will be liable to change with every change of political administration. In our opinion, there are no corresponding advantages to counterbalance these evils. The authority now possessed by the central body, the Lunacy Commission, is entirely adequate to prevent local extravagance."

**ANNUAL REPORT OF STATE COMMISSIONER OF HEALTH.**—The annual report of Dr. Daniel Lewis, state commissioner of health, was submitted to the legislature on Feb. 24. In it considerable attention is devoted to the prevalence of smallpox in the State during the year. In the maritime district, which includes New York City, there were 1,982 cases with 426 deaths. In the other districts of the State the mortality was much smaller, for with a total of 1,100 cases there were only 19 deaths. At the end of the year smallpox existed in 16 localities. The chief source of concern to the department is stated to be the prevalence of the disease at Binghamton and Watertown and in lumber camps in the vicinity of Tupper Lake in the Adirondacks, a region subject to exposure to the Province of Ontario, Canada, where smallpox is widespread. The opinion is expressed that the commissioner should be empowered by law to require vaccination in any and every locality where perfect protection against smallpox requires it. Among the other recommendations made in the report is one that money should be provided for the chemical examination of food and drugs, of malt and other liquors, the assured purity of these various articles of common use being of such great importance to the people of the State. It is be-

lieved that \$2,500 per annum would suffice for the prosecution of the required investigations.

**OVERCROWDING OF STATE HOSPITALS FOR THE INSANE.**—In the ninth annual report of the State Charities Aid Association, transmitted on Feb. 19 to the State Commission in Lunacy, it is stated that on Oct. 1, 1901, the number of patients in the State Hospitals for the Insane and in private asylums in New York State was 24,354, an increase of 576 over the previous year. Of this number only 967 were in private institutions, and the serious overcrowding of the State hospitals is deplored; but it is hoped that the congested condition will cease when the new buildings now in course of erection shall have been completed. At the same time it is predicted that in October, 1903, the State hospitals will contain 600 patients in excess of their certified capacity. In 1905 the condition will be even more serious, because in addition to the 1,400 additional patients, at the present rate of increase, there will be 1,100 patients unhoused by the expiration in that year of the State's lease of the hospital property in Flatbush, Brooklyn. Consequently, the State in the next four years must provide for the accommodation of an increase of 3,100 patients. As a way out of the difficulty the association recommends that for the examination of the alleged insane and for the treatment of incipient and acute cases there should be established in cities of the first and second class, small reception or psychopathic hospitals, with dispensary and out-patient departments.

**THE BERTILLON SYSTEM EXEMPLIFIED.**—An interesting exemplification of the value of the Bertillon system has just been shown in New York. An Englishman by the name of Burslem was recently convicted of grand larceny. The record and measurements of a criminal of the same name had been sent from England, but the prisoner pleaded for clemency on the ground that it was a case of mistaken identity. Judge Foster, in the Court of General Sessions, where he was tried, stated that clemency would be extended to him if he could show that he was not the criminal with the record in foreign cities, and accordingly suspended sentence until an examination of his person had been made. The examination was held in the Tombs on Feb. 20, and it was then found that the man bore all the distinctive marks the description of which had been received from the English police authorities. The identification was all the more positive in this case from the fact that Burslem had had one of his legs amputated below the knee. While serving as a drummer boy in the British army his foot and leg had been crushed by the wheels of a cannon in the war against the Zulus, and on ac-

count of this he was granted a pension by the Government.

**INVESTIGATION OF A NEW SERUM TREATMENT FOR TUBERCULOSIS.**—The Board of Health of Newark, N. J., has been sufficiently impressed with the importance of a new serum treatment for tuberculosis, with which Dr. Herman C. H. Herold, the president of the board, claims to have had encouraging results, to pay the expense of future experiments. It has also provided a room for the purpose in the City Hospital, and offered the use of the laboratory of the health department.

**A JEWISH HOSPITAL IN BROOKLYN.**—Under the auspices of the Jewish Hospital Society, which carries on a dispensary on Johnson Avenue, a public meeting was held on Feb. 16 in the interest of a movement to build a Jewish hospital in the borough of Brooklyn. It is stated that pledges for \$25,000 of the \$100,000 which it is estimated the new institution will cost, have been received.

**A BEQUEST TO THE NEW YORK TRAINING SCHOOL FOR NURSES.**—By the will of the late Mrs. William H. Osborn the building on East 25th Street, which for some time past has been occupied as a nurses' home, is left to the New York Training School for Nurses, connected with Bellevue Hospital.

## Correspondence.

### "AN ARMY CONTRACT (?) SURGEON."

WAR DEPARTMENT, SURGEON-GENERAL'S OFFICE,  
WASHINGTON, Feb. 18, 1902.

MR. EDITOR: In your issue of Feb. 13, 1902, under the caption "An Army Contract (?) Surgeon," appears an extract from the testimony, in a civil case of one "Dr." J. S. Hamilton, which is unique. The relevancy of the man and his testimony to the title of your article is, however, not apparent, for nothing in his statement would indicate that he had ever been a contract surgeon in the Army. A careful search of the records of the War Department fails to disclose the fact that J. S. Hamilton had at any time been on the rolls of the army, and the presumption is that his testimony as to his service is of the same value as his knowledge of anatomy. Were this all, nothing need be said—but the caption of your article is a reflection upon a valuable and devoted body of public servants, the roster of which, from the early days of the republic, embraces some of the most distinguished names in our profession.

Very respectfully,


JOHN VAN R. HOFF,

Lieutenant-Colonel, Deputy Surgeon-General, U. S. Army.

[The contribution referred to in the above communication from Colonel Hoff was sent to us by an old and valued contributor as a sworn copy of the records of the court. The title, to which, on more careful consideration, we agree that exception may perhaps be taken, notwithstanding the presence of the note of interrogation, was part of the copy received. To avoid any possible misconception it might have been expressed differently. We should very much regret even the suspicion of casting any unmerited reflection upon a valuable and devoted body of public servants.—ED.]

## METEOROLOGICAL RECORD

For the week ending Feb. 15, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		We'th'r *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S...9	29.43	30	39	22	63	64	64	W	W	15	15	O.	C.	T.
M...10	29.63	29	38	20	64	55	60	W	W	15	15	C.	C.	
T...11	29.78	21	28	14	76	59	68	W	W	10	10	C.	C.	
W...12	29.80	22	27	16	66	75	70	W	W	12	5	O.	C.	
T...13	29.82	26	33	20	79	87	83	N	N	8	14	O.	N.	T.
F...14	30.02	31	39	23	73	47	60	N	N	20	10	C.	C.	.01
S...15	30.14	31	38	24	68	42	55	W	N	6	8	C.	C.	
	29.80		35	20			66							.01

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 15, 1902.

CITIES.	Population * Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Diarrheal diseases.	
New York...	3,665,362	1,507	568	24.35	17.05	3.18	.53	1.90	
Chicago...	1,852,828	—	—	—	—	—	—	—	
Philadelphia...	1,240,624	602	179	24.57	16.60	3.48	4.64	.50	
St. Louis...	603,717	—	—	—	—	—	—	—	
Baltimore...	525,330	232	60	12.50	17.24	—	—	—	
Cleveland...	411,826	—	—	—	—	—	—	—	
Buffalo...	376,742	—	—	—	—	—	—	—	
Pittsburg...	341,401	134	50	19.40	24.61	—	—	—	
Cincinnati...	332,032	—	—	—	—	—	—	—	
Milwaukee...	304,975	—	—	—	—	—	—	—	
Washington...	289,637	—	—	—	—	—	—	—	
Providence...	186,870	78	29	11.52	29.44	—	—	—	
Boston...	568,736	232	60	29.74	18.10	2.15	1.72	.43	
Worcester...	127,337	44	11	13.43	9.08	2.27	—	2.27	
Fall River...	111,472	49	17	18.36	30.60	2.04	—	5.16	
Lowell...	90,574	40	18	12.50	30.00	5.00	—	—	
Cambridge...	96,334	34	10	19.52	19.52	5.88	—	—	
Lynn...	71,144	25	8	16.00	—	—	—	—	
Lawrence...	67,275	26	14	24.65	11.55	—	—	7.70	
Springfield...	66,854	9	—	22.22	—	—	11.11	—	
Somerville...	65,482	18	3	11.10	22.20	—	—	—	
New Bedford...	65,574	26	5	19.25	19.25	3.85	3.85	—	
Holyoke...	48,065	18	5	22.20	11.10	—	—	11.10	
Brockton...	43,208	18	1	22.20	—	—	—	—	
Haverhill...	40,392	12	2	—	25.00	—	—	—	
Salem...	36,567	7	3	14.30	14.30	—	—	—	
Newton...	36,336	15	4	13.33	33.33	6.66	—	—	
Malden...	35,390	14	5	38.46	5.55	—	—	—	
Chelsea...	35,284	4	—	—	—	—	—	—	
Fitchburg...	33,844	8	6	12.50	37.50	12.50	—	—	
Taunton...	32,750	7	—	14.30	—	—	—	—	
Everett...	27,114	13	5	15.40	—	7.70	—	—	
North Adams...	26,543	12	3	16.67	—	8.33	—	—	
Gloucester...	26,121	2	—	—	—	—	—	—	
Quincy...	25,307	13	4	23.10	23.10	—	—	—	
Waltham...	24,612	10	3	10.00	20.00	—	—	—	
Pittsfield...	22,811	3	—	66.67	—	—	—	—	
Brookline...	21,679	8	2	12.50	25.00	—	—	—	
Chicopee...	20,390	6	1	16.67	16.67	—	—	—	
Medford...	20,014	—	—	—	—	—	—	—	
Newburyport...	14,473	—	—	—	—	—	—	—	
Melrose...	13,384	2	—	—	50.00	—	—	—	

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,281; under five years of age, 1,090; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption; 742, acute lung diseases 576, consumption 361, scarlet fever 60, erysipelas 13, typhoid fever 50, whooping cough 20, cerebrospinal meningitis 13, smallpox 37, measles 41, diarrheal diseases 49.

From whooping cough, New York 11, Philadelphia 3, Providence 1, Boston 2, Lawrence 2, Weymouth 1. From cerebrospinal meningitis, New York 8, Baltimore 1, Worcester 1, Lynn 2, Brookline 1. From scarlet fever, New York 43, Philadelphia 4, Baltimore 2, Pittsburg 7, Boston 3, Malden 1. From erysipelas, New York 6, Philadelphia 2, Baltimore 1, Boston 3, Cambridge 1. From smallpox, New York 14, Philadelphia 14, Providence 1, Boston 6, Cambridge 1, Malden 1.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending Feb. 1, the death-rate was 17.9. Deaths reported 5,115; acute diseases of the respiratory organs (London) 375, whooping cough 101, diphtheria 85, measles 85, smallpox 43, scarlet fever 60.

The death-rate ranged from 7.2 in York to 30.3 in Great Yarmouth; London 18.8, West Ham 13.3, Croydon 17.4, Brighton 16.7, Portsmouth 19.8, Southampton 14.5, Bristol 13.6, Birmingham 21.3, Leicester 17.8, Nottingham 18.4, Birkenhead 10.2, Liverpool 20.6, Manchester 19.6, Salford 16.6, Bradford 13.5, Leeds 17.4, Sheffield 18.5, Hull 14.8, Newcastle-on-Tyne 20.7, Cardiff 21.3.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING FEB. 15, 1902.

L. W. SPATLING, surgeon. Order to the Naval Hospital, Portsmouth, N. H., revoked; ordered to continue on waiting orders.

E. V. ARMSTRONG, passed assistant surgeon. Detached from recruiting duty, Feb. 17, and ordered to the "Olympia."

J. E. PAGE, passed assistant surgeon. Ordered to Seattle, Washington, March 1, for temporary recruiting duty.

P. M. RIXEY, rear admiral. Commissioned surgeon-general of the Navy and chief of the Bureau of Medicine and Surgery, with the rank of rear admiral, from Feb. 10, 1902.

#### OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEB. 13, 1902.

BLUE, RUPERT, passed assistant surgeon. To proceed to Des Moines, Iowa, for special temporary duty. Feb. 10, 1902.

SPRAGUE, E. K., passed assistant surgeon. To assume command of the service at Detroit, Mich., relieving Surgeon J. J. Kinyoun. Feb. 13, 1902.

THOMAS, A. K., passed assistant surgeon. To proceed to Liverpool, Eng., for special temporary duty. Feb. 7, 1902.

SWEETING, C. B., acting assistant surgeon. Bureau letter of Jan. 16, 1902, granting Acting Assistant Surgeon Sweeting leave of absence for 5 days from Jan. 23, 1902, amended so that said leave shall be effective from Feb. 16. Feb. 10, 1902.

BROWN, F. L., pharmacist. Granted leave of absence for 10 days from Feb. 10. Feb. 7, 1902.

#### FOR SEVEN DAYS ENDING FEB. 20, 1902.

KINYOUN, J. J., surgeon. Granted leave of absence for 2 months and 3 days from Feb. 16. Feb. 14, 1902.

ROSENAU, M. J., passed assistant surgeon. Detailed to represent the service at meeting of the New York Academy of Medicine to be held at New York, N. Y., Feb. 20. Feb. 17, 1902.

SPRAGUE, E. K., passed assistant surgeon. To proceed to Port Huron, Mich., for special temporary duty. Feb. 17, 1902.

DECKER, C. E., assistant surgeon. Granted extension of leave of absence for 15 days from Feb. 15, on account of sickness. Feb. 19, 1902.

MONCURE, J. A., acting assistant surgeon. Granted leave of absence for 30 days from Feb. 15. Feb. 18, 1902.

HARRIS, B. Y., acting assistant surgeon. Granted leave of absence for 15 days from Feb. 15. Feb. 19, 1902.

HODGSON, S. H., acting assistant surgeon. Granted leave of absence for 30 days from March 1. Feb. 19, 1902.

HUNTER, W. R., acting assistant surgeon. Granted leave of absence for 2 weeks from Feb. 1. Feb. 14, 1902.

PECK, F. H., senior pharmacist. Relieved from duty at St. Louis, Mo., and directed to proceed to Evansville, Ind., and report to medical officer in command for duty and assignment to quarters. Feb. 20, 1902.

STEPHENSON, C. W., junior pharmacist. Upon being relieved from duty at Evansville, Ind., to proceed to St. Louis, Mo., and report to medical officer in command for duty and assignment to quarters. Feb. 20, 1902.

#### RESIGNATION.

Surgeon J. J. KINYOUN resigned to take effect April 19, 1902.

#### SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A regular meeting of the society will be held at Sprague Hall, Medical Library Building, on Monday, March 3, 1902, at 8.15 p.m.

Subject: Smallpox. "The Pathological Anatomy of Smallpox, with Demonstrations and Lantern Slides," by Professor Councilman, Dr. G. B. Magrath and Dr. W. R. Brinckerhoff; "Clinical Observations of Smallpox," by Drs. I. R. Bancroft, P. Carson and S. F. Cox, physicians in charge of the city smallpox hospitals.

ARTHUR K. STONE, M.D., Secretary,  
543 Boylston Street.

SUFFOLK DISTRICT MEDICAL SOCIETY. SURGICAL SECTION.—The next meeting of the section will be held at the Medical Library Building, 8 The Fenway, on Wednesday, March 5, at 8.15 p.m.

Papers: Dr. C. L. Gibson of New York, "The Creation of a Valvular Fistula (1) for the Treatment of Chronic Colic (2) as an adjuvant in operating on the stomach"; Dr. J. B. Blake, "Operations on Varicose Veins"; Dr. F. B. Lund, "Ileo-psoas Bursitis in Relation to Diseases of the Hip Joint; its Treatment by Incision and Drainage, with Report of Cases."

F. S. WATSON, M.D., Chairman,  
F. B. LUND, M.D., Secretary,  
529 Beacon Street.

#### RECENT DEATHS.

JOSEPH WINSLOW WINSLOW, M.D., M.M.S.S., of Easthampton, died in Enfield Feb. 24, 1902, aged 81 years.

DR. LEVI COOPER LANE is dead at his home in San Francisco at the age of 69. He was founder of the Cooper Medical College and the Lane Hospital.

DR. LOUIS LEWIS of Philadelphia, editor of "The Medical World," "The Medical Council," and "The Medical Times and Register," died on Feb. 19 in St. Vincent's Hospital, New York, where he had undergone an operation. Dr. Lewis was born in England 63 years ago and was a graduate of the Royal College of Surgeons and of the University of London.

#### BOOKS AND PAMPHLETS RECEIVED.

University of Pennsylvania. Contributions from the William Pepper Laboratory of Clinical Medicine. Reprints. No. 2. Philadelphia. 1901.

The Pathology and Bacteriology of Uretero-Intestinal Anastomosis. By F. Robert Zeit, M.D., Chicago. Illustrated. Reprint. 1901.

Effect of Direct, Alternating, Tesla Currents and X-rays on Bacteria. By F. Robert Zeit, M.D., Chicago. Illustrated. Reprint. 1901.

Epilepsy, Responsibility and the Czolgosz Case. Was the Assassin Sane or Insane? By J. Sanderson Christison, M.D. Reprint. 1902.

The Operative Cure of Procidientia Uteri. By Charles P. Noble, M.D., of Philadelphia, Surgeon-in-Chief of Kensington Hospital for Women, Philadelphia. Reprint. 1902.

The Ultimate Results of Operation for Cancer of the Uterus. By Charles P. Noble, M.D., of Philadelphia, Surgeon-in-Chief, Kensington Hospital for Women, Philadelphia. Reprint. 1901.

Transactions of the American Orthopedic Association. Fifteenth Session, held at Niagara Falls, June 11, 12 and 13, 1901. Vol. XIV. Published by the Association, Philadelphia. 1901.

A Guide to the Microscopic Examination of the Eye. By Prof. R. Greeff. Translated from the second German edition by Hugh Walker, M.A., M.B., C.M. Philadelphia: P. Blakiston's Son & Co. 1902.

## Original Articles.

A CASE OF SEVERE AND THREATENING HEMATURIA FROM MOVABLE KIDNEY, WITH A DISCUSSION OF THE CAUSATION OF THIS CONDITION.<sup>1</sup>

BY ARTHUR T. CABOT, A.M., M.D., BOSTON.

*Surgeon to the Massachusetts General Hospital.*

It is not uncommon to see blood in the urine as a result of mobility of the kidney, but this blood is usually present in microscopical amount, rarely in such quantity as to give the urine a characteristic color.

A case in which the loss of blood from this cause reaches proportions to induce serious anemia is a great rarity, and it is on this account that the following case is reported:

Miss H., a spare woman of 43, was seen by the writer on April 6, 1901, in consultation with Dr. G. C. Howard. The patient remembered that in the past few years she had at times when tired noticed a dull pain in the abdomen. This was felt, she thinks, rather to the left of the median line. She had also during this period on several occasions seen a little blood in the urine. This condition was not persistent. The urine would be colored at one urination and the next time would be again clear. In December, 1900, she had hematuria lasting for two days. The urine during this attack was deeply colored, but did not contain clots. The urine was then clear to her observation until March 18, 1901, when the hematuria began again with considerable violence. The urine at first was bright red, but after the first few days became dark purple, almost black. It now also began to contain clots.

The patient was put in bed, and ergot and other hemostatics were administered, but the hemorrhage continued in unabating amount. An examination of the urine on April 6, 1901, showed a specific gravity of 1.012 and an alkaline reaction, between  $\frac{1}{4}$  and  $\frac{3}{4}$ % of albumin and a large sediment of normal blood, mucus and pus. At no time during this attack was there evidence of inflammation or much irritation in the bladder. The urine was passed about once in four hours in the day and about three times at night. The only discomfort experienced was during the passage of clots. Beside these local symptoms there had been a decided loss of appetite and the power to take food, while the strength had been steadily falling.

When I saw the patient on April 8 she was extremely pale and waxy in appearance, with a rapid, feeble pulse. She was propped up in a half-sitting position in bed. A bimanual examination of the pelvis was negative. The bladder was carefully searched with a steel instrument, and between this searcher in the bladder and the finger in the vagina the posterior and lateral bladder walls were closely examined without the detection of any projecting vesical growth or, indeed, of any thickening of the bladder wall. This very thorough exploration caused no increase of the hemorrhage, nor did it change the urine by any brighter appearance of blood. The abdomen was thin, with no great rigidity of the wall, and at once the right kidney was felt, somewhat enlarged and in an abnormally low position. The lower pole of the organ reached to just above the brim of the pelvis and the upper pole was still covered by the edge of the liver and the ribs. The kidney was not very sensitive to pressure, although firm handling caused slight discomfort. It was not possible with moderate force to push the kidney up into place, and a persistent effort to accomplish this

was not thought advisable lest some venous thrombus should be dislodged by such manœuvre.

In the absence of evidence pointing to any other explanation of the hematuria, it was believed to be due to the extreme congestion of the right kidney, caused by its downward displacement. It was further recognized that the patient's position in bed, half sitting and bending forward, favored the downward displacement and so tended to aggravate the congestion. It was further felt that the patient's extremely reduced condition was unfavorable for operation.

It was decided, for these reasons, to lower the patient's shoulders and to raise her hips so that the downward drag of the kidney should cease. If this measure failed, it was felt that an operation would have to be done as a final resort, in spite of the unpropitious condition of the patient. On the other hand, it was felt that if this change of position worked favorably and the loss of blood was stopped, that then the operation for fixation of the kidney could be done after the strength had been regained.

The patient was now laid flat upon the mattress and the foot of the bed was considerably raised. Dr. Howard subsequently wrote me that for thirty-six hours after I saw her there seemed to be rather more blood in the urine than before. At the end of forty-eight hours it showed a sensible diminution of blood, and a few hours later was wholly free from any red color. A considerable quantity of what appeared to be broken-down tissue had been noticed in the urine just before the hemorrhage ceased, and for two days thereafter the urine contained this fleshy material and much mucus. (Unfortunately, this material was accidentally thrown away without any microscopical examination. It seems probable, however, that it was decolorized blood clot mixed with mucus that had accumulated in the renal pelvis and escaped when the free flow through the ureter was re-established.) The urine then became quite clear with acid reaction. Specific gravity, 1.016, and a slight trace of albumin. Three days later Dr. Howard allowed the bed to be lowered to a horizontal position for about four hours. On the following morning the blood had reappeared in the urine. From this time the position with raised feet and lowered head was maintained until early in May, when the patient, becoming very tired of the position, was allowed to sit bolstered up in bed for twenty minutes each day. The blood became at once noticeable in the urine, though in far less amount than before. From the time the bleeding ceased the patient began to rapidly gain strength and the appetite and digestion became satisfactory.

Finally, the patient became convinced that an operation for fixation of the kidney was necessary to enable her to get up with safety.

May 20, 1901, I saw her again at the Lawrence Hospital, which she entered for the operation. Under ether the kidney could be plainly felt projecting from beneath the ribs and reaching down to the level of the umbilicus. It was very much smaller than at my former examination, being now little, if at all, larger than normal, and it could now be pushed quite easily into its proper position. An incision was made down along the outer edge of the quadratus lumborum muscle, exposing the kidney. The fat capsule was ample in size and scantily filled with fat. In it the kidney moved up and down freely. The surface of the kidney was of a milky color, owing to a very considerable thickening of the capsule proper. No further abnormality could be discovered. The thickened capsule was split along the convexity and slightly separated from the kidney. Its edges were then sewn tightly to the transversalis fascia with continuous stitches of

<sup>1</sup> Read before the Clinical Meeting of the Massachusetts General Hospital Feb. 14, 1902.



chromicized catgut. The upper ends of these stitches were fixed in the fascia on the lower edge of the twelfth rib. The muscular layers were brought together with interrupted catgut stitches and the skin tightly closed with silkworm gut. Convalescence was uneventful. In a letter received from this patient on Feb. 4, 1902, she says: "I have not had any appearance of blood in the urine since the operation. I do not have any pain in the kidneys," but "have a dragging in the one that was operated on when I lie on my left side."

The condition in this case admits of no doubt. The position of the kidney at the first examination, the cessation of the hemorrhage after a favorable change of position, the renewed tendency to hemorrhage whenever a faulty position was resumed, and the final entire relief when the kidney was securely fastened in correct position, force one to believe that this was indeed a case of serious interference with the renal circulation due to the downward displacement of the kidney.

Many of the shorter treatises on this subject are wholly silent as to the occurrence of serious congestion from this cause, and even the more extensive monographs on the subject of movable kidney make very brief mention of the possibility of congestion being due to the interference with the vessels. Furthermore, when they mention it, they attribute this congestion to a twisting of the vessels; but the present writer has yet to see the report of such a case in which it is made clear that any real twisting occurred.

The fact is, that little is known of the mechanism by which the circulation is obstructed in cases of movable kidney. It is a condition which does not lead to death, and during life the exact nature of the obstruction cannot be accurately studied. It is probable that it rarely depends upon real torsion of the vessels. Rotation of the kidney is an extremely infrequent condition. I have seen it but once, and that in a case where an attempt had already been made to fix the kidney. The lower pole of the kidney had been fixed and the torsion was caused by the falling downwards and forwards of the upper pole. In the vast majority of cases of movable kidney, the displacement is simply a slipping downward of the whole organ. When the downward drag begins to be really felt, it appears natural that it should produce more obstructive effect on the thin-walled vein, with its comparatively sluggish current, than on the thicker artery, with its vigorous flow. The anatomical arrangement, too, of the vessels in the right kidney is especially favorable to the production of congestion when the kidney slips downward, for on that side the vein is short, while the artery is long, coming from the aorta on the other side of the spine. Owing to this shortness of the vein, it feels the pull of the kidney, as it moves downward, before the longer artery does and in greater degree. Thus the return of the venous blood is interfered with before the arterial supply is materially affected, and the conditions are most favorable to a condition of active congestion. It would be interesting, in this connection, to have reports of any cases of pro-

nounced congestion of the left kidney due to displacement. In the only case that the writer can recall of a left kidney that was noticeably enlarged in consequence of displacement, it was believed that this enlargement was due rather to an intermittent hydronephrosis than to any especial congestion of the organ, and that belief was borne out by the immediate relief afforded by massage and replacement of the kidney in its proper position. In that case there was no appearance of blood in the urine to support the theory of any congestion.

Examination of literature on the subject confirms the impression that hemorrhage from this cause is a very rare condition. Rovsing<sup>2</sup> reports a case of hemorrhage in a woman which appeared after lifting a heavy tub. Colon bacilli were found in the urine, and it was shown by examination that the bleeding was from the right ureter. The kidney was enlarged, rigid and attached closely to the liver. The liver also showed a furrow which was believed to be due to tight lacing. Rovsing considered the bleeding in this case due to venous stasis by torsion of the pedicle in a misplaced kidney. The operation effected a cure.

In a rather hasty review of the literature on the subject, this is the only case which I have been able to find where the description of the condition is exact enough to convince one that it is really a hemorrhage due to a misplacement. The various textbooks on medicine and surgery are silent in regard to the occurrence of this condition. Morris, in his recent very complete consideration of the diseases of the kidney, mentions casually that the blood shows itself very rarely in this condition, but makes no allusion to the possibility of so serious a congestion as is illustrated in the case just reported.

I have met with a number of cases of swollen and tender kidney in which the downward drag of the organ was the evident cause of the swelling. It is always difficult in such cases to accurately determine how far the swelling is due to congestion and how far it depends on an intermittent or temporary hydronephrosis caused by a kinking of the ureter. But the more I have seen these cases, the more clear I have been that congestion plays a large part in the production of the swelling.

It is plain that a kidney with short vessels would be quick to feel the effect of a downward pull, and in a kidney lying unusually high, it is conceivable that this pull might produce considerable obstruction to circulation before the organ came down low enough to be regarded as a movable kidney. Cases of hematuria are occasionally reported in which no cause can be discovered, and in which cutting down upon the kidney and splitting the capsule effects a cure. I have seen one or two such cases. May not some of them be instances of congestion from the downward drag which has not been recognized, but which has been corrected by the adhesions following the incision into the kidney?

<sup>2</sup> See *British Medical Journal*, Nov. 19, 1898.



This matter needs further study, and, unfortunately, the cases are too rare to allow any one observer to have the opportunity to make an extensive study of them. It behoves, then, those seeing such cases to report them fully.

## REPORT OF TWO CASES OPERATED ON FOR DEFORMITY OF THE NOSE.<sup>1</sup>

BY J. PAYSON CLARK, M.D., BOSTON.

THE first case which I shall report is interesting, more perhaps as a curiosity than because it illustrates any particular class of cases. The patient, Mr. P., was referred to me last April by Dr. F. W. Thompson of Fitchburg for the correction of a nasal deformity. He was an electric car conductor, 31 years of age. The deformity



FIG. 1.—Case I (before operation).

followed an injury caused by a fall on the nose when he was a boy. The appearance of his nose was such as to be very noticeable. This condition was especially trying to him, as his occupation made it necessary for him to be seen by a great many people every day, and exposed him to the insulting remarks of thoughtless boys. This sketch (Fig. 1) gives a very correct idea of his appearance before the operation. It was drawn by Dr. H. P. Mosher (to whom I here desire to express my thanks) from a photograph taken by him at the time, but which, owing to the darkness of the day, did not come out satisfactorily. The plaster cast also shows the shape and appearance of the nose. On examination

<sup>1</sup> Read before the Surgical Section of the Suffolk District Medical Society, Dec. 4, 1901.

this appearance was found to be due to an overgrowth forward of the triangular cartilage of the septum, drawing up the tip of the nose and giving an irregular knob-like appearance to the organ. This appearance was accentuated by rather a low bridge, and the irregularity was increased by a bending of the redundant cartilage on itself to the right. Internally the septum was deviated to the left, but not enough to be obstructive.

The operation was a comparatively simple one. The patient was etherized and placed sitting up in a chair. The nasal vestibule was thoroughly washed with Seiler's solution. The nasal mucous membrane in the left nostril close to the septum and below the deformity was cut through with a small bistoury, and, by means of a blunt dissector introduced through this opening, the skin was freed over the prominent portion of the nose. Then a pair of slightly curved scissors were introduced and the redundant cartilage removed piecemeal until the shape of the nose seemed about as it should be. A gauze wick was placed in the



FIG. 2.—Case I (after operation).

left nostril and a gauze pad with cardboard and adhesive plaster over the nose to hold everything in good position. There was a certain amount of swelling which gradually disappeared. The gauze wick and external support were removed on the second day and the patient made an uneventful recovery. As you can see by the plaster cast and photograph, taken, one over a month and the latter several months after the operation, the opening of the nostrils is now on a horizontal plane and the general appearance of the nose is not remarkable in any way (Fig. 2).

My second case shows some of the difficulties which one may encounter in attempting to correct old displacements or fractures of the nasal bones. The patient, Miss A., aged 25, came to the Massachusetts General Hospital last September in Dr. Mixer's service. Knowing that I was interested in such cases he kindly referred her to me. The history is briefly as follows: Two years ago she fell from her bicycle, cutting her

nose badly and dislocating it to the left. The wound was dressed, but apparently nothing was done to replace the nose in its proper position. A year ago she fell down an embankment, striking on her face and, she thinks, bending the nose more to the left.

When I saw her the nose presented the appearance which is shown very well in the photographs and in the cast of the nose. Besides a marked angular lateral displacement there was also, in profile, a rather sharp angle between the bony and cartilaginous portions of the nose, in other words, an exaggerated Roman nose. Internally the right nostril was much narrowed, so that breathing through it was impeded. The object of the operation was to straighten these angles as much as possible and to bring the nose into the median line. To accomplish these objects I proposed to perform the Goodale operation for exaggerated Roman nose, which I have used successfully in another case.<sup>2</sup>

The patient was etherized and placed in the sitting posture. A pair of stout narrow-bladed curved scissors were introduced into the left nostril and the point of one blade pushed through the cartilaginous septum close to its anterior border and about  $2\frac{1}{2}$  cm. from the tip of the nose. The cartilaginous and osseous septum was then cut through, following the outline of the deformity and close to its articulation, with the nasal bones to a point just under the articulation of the nasal bones with the frontal. With a pair of straight scissors a small piece of the septum under the angular portion of the nose was cut off so as to leave the anterior border of the septum straight. Next, a short-bladed saw was introduced into the left nostril and the left nasal bone sawed through as nearly as possible at and parallel with its suture with the nasal process of the superior maxilla. This was done until the saw could just be felt under the skin. The same process was gone through on the right side. Here, however, it was found that the bone, probably as a result of the two injuries, was four or five times as thick as that of the left side and very hard. This made the process of sawing through much more difficult. By pressing on the sides of the nasal bones I was now able to break their slight remaining attachments to the superior maxillæ. The nasal bones were attached only to the frontal. Now, using the padded handle of a tongue depressor as a pleximeter to prevent bruising the skin, I gave a quick light blow over the nasal bones. Nothing resulted. I repeated this procedure three or four times, slightly increasing the force of the blow, until I heard a crack. To my disappointment I found that the left nasal bone had fractured about a cm. below the nasofrontal suture, and the lower portion of it had thus become separated from the right nasal bone, which was still, apparently, firmly united to the frontal. The failure of this step of the operation was no doubt due to the extreme thick-

ness of the right nasal bone, although it is possible that I did not cut through the septum sufficiently far up and that the portion of the osseous septum thus left intact prevented the nasal bones coming away from the frontal as they should have. If this was so it goes to emphasize the importance of making sure, if possible, that the septum is cut through as high up as the artic-

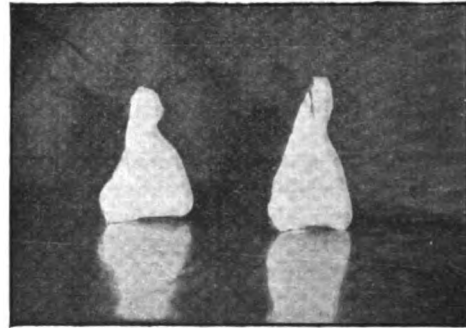


FIG. 3.—Plaster casts of Case II (before and after operation).

ulation with the frontal bone. In spite of this failure, however, it was found that the nasal bones could now be slid down inside the nasal processes of the superior maxillæ, getting rid almost entirely of the anteroposterior angular prominence and bringing the nose practically into the median line. The operation was hurried somewhat on account of the poor condition of the patient's pulse almost from the start and the shallow character of the respiration. The support which I applied to the nose is a very simple one, and in my experience much superior to any form of splint. It was applied as follows: A strip of

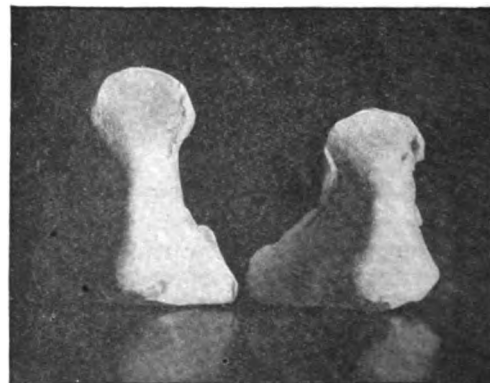


FIG. 4.—Plaster casts of Case II (after and before operation).

adhesive plaster about an inch wide was attached from under the right ear over the right cheek, and then exerting a certain amount of traction over a pad of gauze suitably placed on the nose, the strip of plaster ending on the left cheek just under the left eye. Then another strip of plaster was applied exactly over the first, but exerting a little more traction and carried way around

<sup>2</sup> An Operation for Exaggerated Roman Nose. *Boston Medical and Surgical Journal*, May 30, 1901.

the face and under the left ear. It is surprising how much pressure may be obtained in this way. This support and traction was kept up for nearly two weeks, except when removed for observation. Then, owing to the appearance of the skin under the pad, which had been slightly bruised during the operation, it was deemed best to leave it off. Owing to the result of the constant steady traction the position of the nose was now very good, there being almost no anteroposterior angle, and on a front view the nose appearing almost in the median line. As a result of this enforced premature removal of the support the nose is not quite as good as when it was removed, although the improvement over the previous condition is marked. Another result of the operation is that breathing through the right nostril is now free (Figs. 3 and 4).

The points to be emphasized in this case are: The extreme thickness of the right nasal bone, the failure of the nasal bones to separate from the frontal at the suture, and the inability, owing to the condition of the skin, to keep on support as long as seemed desirable.

#### CONTRIBUTION TO THE STUDY OF SPINAL FRACTURE WITH SPECIAL REFERENCE TO THE QUESTION OF OPERATIVE INTERFERENCE.<sup>1</sup>

BY. O. L. WALTON, M.D., BOSTON.

SPINAL operation has proved comparatively free from the drawbacks and dangers attending intracranial surgery. This fact, together with the serious, painful and usually fatal nature of the lesion under consideration, renders the question pertinent whether it is not wise to make early operation the common custom, in the hope, at least, of relieving pain and of improving the course of the average case.

Certain symptoms have been deemed sufficient to show that the cord is irrevocably crushed, namely, relaxed paralysis with anesthesia, loss of reflexes, with loss of control of bladder and rectum, but cases have been reported in which considerable restoration of function has followed such symptoms. It is only through their persistence that complete crush is established. If we wait to determine this point valuable time may be lost, as secondary degenerations of the cord appear shortly, and early operation in all doubtful cases will not only accomplish all that late operation will do for these cases, but it will be performed to better advantage before reparative processes with adhesions and callus have appeared.

The tables of Thorburn, based on clinical rather than on anatomical or experimental considerations, have stood the test of practical application. If the nerve roots are involved, the anesthesia will reach the level of the lesion. A case in Dr. Conant's service (operated on by Dr. Balch) was

anesthetic to the groin on the right (lumbar distribution), but on the left the sacral distribution only was involved. After operation the level of anesthesia on the right was lowered to the sacral distribution on account of relief of pressure from the nerve roots. Speedy relief of pain and some improvement in motion followed operation. The former alone would justify operative interference.

In a case seen with Drs. Hinsdale and Washburn the classical symptoms of complete crush were present, together with fracture of all four extremities, of the sternum, the clavicle and the nose. Removal of the first three dorsal arches by Dr. Cabot was followed by considerable return of sensation and motion, the former almost completely restored, the latter steadily improving, up to the time of publication.

Symptoms resembling fracture may result from distortion in the cervical region with replacement. This lesion generally produces more or less persistent symptoms in the arms due to nerve root injury.

The local signs of spinal fracture are often insufficient to establish the diagnosis. If irregularities appear, especially if accompanied by infiltration of overlying tissues, tenderness on pressure, and local pain becoming extreme when the patient is rolled, such signs are valuable aids.

Irregularities without symptoms of paralysis are not necessarily of import. Such irregularities are common in health, particularly prominence of one or more lower dorsal vertebræ on bending slightly forward. Such prominence may be mistaken for fracture in a patient suffering from strain of the back with its accompanying pain. Various curves were shown illustrating more or less marked irregularities in normal backs.

The fatality of fracture without operation is about 80%. This fatality is claimed to have been reduced by operation to 50%, but these statistics are not trustworthy on account of failure to report unsuccessful cases. In 34 collected cases avoiding this error the fatality was 70%.

The operation is not especially dangerous; it does not leave the vertebral column materially weakened. Even though future statistics may show that the fatality is not materially lowered by operation, removal of pain and improvement in symptoms would justify an operation of so little seriousness compared to the gravity of the condition for which it is attempted.

Moribund condition, high and rapidly rising temperature, and extreme displacement of vertebræ are contra-indications to operation.

#### CONCLUSIONS.

(1) There are no symptoms which establish (otherwise than through their persistence) irreparable crush of the cord.

(2) While total relaxed paralysis, anesthesia of abrupt demarcation, total loss of reflexes, retention, priapism and tympanitis, if persistent, point to complete and incurable transverse lesion, the onset of such symptoms does not preclude a certain degree at least of restoration of function.

<sup>1</sup> Read before the Boston Society for Psychiatry and Neurology Nov. 21, 1901; New York Neurological Society, Oct. 1, 1901.

(3) The prognosis without operation is grave.

(4) While the results of operation are not brilliant, they are sufficiently encouraging to warrant us in making the practice more general.

(5) In most cases it will be wise to operate within a few days of the injury; but a delay of some hours is advisable, partly on account of shock and partly to eliminate the diagnosis of simple distortion.

(6) We have no infallible guide to the extent of the lesion. The operation, at the worst, does not materially endanger life nor affect unfavorably the course of the case, and may, at least, reveal the lesion and lessen the pain; it may sometimes save a patient from death or from helpless invalidism of the most distressing character. Instead of selecting the occasional case for operation, we should rather select the occasional case in which it is contra-indicated (the patient with great displacement of vertebræ, the patient with high and rising temperature, the patient plainly moribund, the patient still under profound shock).

(7) The dura should be opened freely; it need not be sutured; drainage is not necessary.

#### ADENOCARCINOMA OF LIVER: PERFORATION OF STOMACH; DEATH; AUTOPSY.

BY CHARLES S. WALKER, M.D., CONCORD, N.H.,

*Second Assistant Physician at New Hampshire State Hospital; Fellow of the New Hampshire Medical Society.*

G. W. M., age 64, male, was admitted to the New Hampshire State Hospital Aug. 4, 1900, with a history as follows: Had earned his living, up to within six months of his admittance to the hospital, as a shoemaker. Had not shown any mental disturbance until July 29 of that year. He imagined that people were doing various things to him, and he threatened to retaliate. He had not been noisy or very troublesome, but the people with whom he lived were much exercised, and afraid some injury might befall them. Hallucinations of sight was one characteristic symptom. Physically the patient was in poor health, and mentally confused.

After admittance he gained considerably in weight; appeared cheerful, and was not confused. In the late fall became very much worse. He became confused at the supper table one evening, twisted his hands and acted foolishly. Was put to bed, and in a few moments was found unconscious. When the physician arrived was with difficulty aroused, and at once dropped off to sleep. His muscles were somewhat spastic, but he could move them. Inco-ordination was evident in all his limbs. Vomited several times; face was flushed and highly congested. Took a small amount of nourishment, and in two days began to improve. Tells stories that are improbable, also events that happened weeks before as though they had just occurred. Complains of pain about the heart. Recovered from this attack and is in a

semi-demented condition; continues to gain in flesh and is able to care for his person.

Mr. M. worked around the kitchen during the greater part of the past spring and summer, except during an occasional bad spell similar in every detail as that above given, which were epileptic in character, as the patient was suffering with structural brain disease. He did not realize the gravity of his condition.

Aug. 19, 1901, patient arose about 6.30 A.M., and was at once taken with a severe pain in the epigastric region, and vomited. Thinking that something had been eaten, and that the pain was gastralgic in character, a small dose of brandy and tincture opii min. X was given with no benefit. The pain and vomiting continued; the pain was excruciating. The patient lay doubled up in bed; nothing gave relief. Soon the vomitus became dark — coffee colored in appearance. Suspicions were aroused that possibly a vessel had ruptured in the stomach walls. A greater or lesser amount was vomited at intervals during the day. Temperature 97.8°, pulse 84. A rectal injection was given with good results, as patient had suffered with obstinate constipation for some time.

It was impossible to allow any pressure on the abdominal walls because of the extreme tenderness. The abdominal muscles were rigid and board-like in character. During the afternoon he became more comfortable, lying on the right side. At intervals he was devoid of pain, especially when lying quiet. Took no nourishment during the day. Strychnin sulphate,  $\frac{1}{16}$  gr., was given, also hypodermic injections of morphin,  $\frac{1}{4}$  gr., and strychnin,  $\frac{1}{16}$  gr., to ease the pain every few hours. Tannic acid powders in 5-gr. doses were given every three hours in order to control as far as possible the existing hemorrhage. During the night he had two bad attacks of pain but no vomiting; was conscious during the entire day and night. Although he slept some, he was easily aroused.

Aug. 20 temperature was 96.6°, pulse 78. Took a little nourishment — the whites of two eggs with a few drops of lemon juice — every three hours, which was fairly well retained. The vomitus had none of the previous color, but the abdominal tenderness continued to increase and a general peritonitis was present. A cold perspiration bathed the body. Although the patient was in a somewhat comatose condition during the day, yet he could be easily aroused up to the evening of above date.

The patient died at 3 A.M. on Wednesday, about forty hours from the first onset of symptoms.

Autopsy showed many interesting features, performed thirteen hours after death. The exciting cause of death was found to be a perforation on the posterior wall of the stomach, about two inches above the pylorus, that readily admitted the tip of the little finger, and included the wall of a small artery. A general septic peritonitis had arisen, the intestines being in a highly inflamed condition, as well as the entire peritoneum. The blood vessels in the stomach walls were con-

gested, while the walls were thinner than normal. The lymphatic glands were enlarged and the intestines were distended with gas. Right kidney was slightly contracted, capsule somewhat adherent, congested, and cortex normal; weight 4 oz. Left kidney contracted, capsule adherent, cyst at lower end and somewhat congested; cortex thinner than normal; weight 2½ oz. The tail of the pancreas consisted of a thick fibrous mass, attached to the spleen, which was doubled on itself to a considerable degree. The mass was hard and dense. On section was firm to the knife and showed but little vascularity. The liver weighed 2 lb. 10 oz., with but little normal liver tissue. This was also thickly studded with fibrous nodules ranging in size from the diameter of the tip of the little finger to an inch or more. They seemed to be in close relationship with the vessels.

Sections of the above were sent to Dr. H. N. Kingsford of Hanover, N. H., for diagnosis. He reported as follows: "Post-mortem changes had set in before specimens were received. Spongy, smooth, hard nodules varying in size from a pea to that of a large marble were scattered throughout the substance of the liver. The surface of the liver is light brown, capsule torn. On a portion of the capsule appear numerous small black spots. Microscopical examination shows these nodules to be composed of epithelial cells, growing in all directions, with more or less fibrous tissue separating the masses of cells; very few liver cells are found. Very few mitotic figures are seen. The pancreas appears about normal. The stomach shows the edge of a chronic ulcer. There is no evidence of epithelial proliferation in the stomach wall. The spleen shows chronic passive congestion with obliterative endarteritis. Diagnosis is papillary adenocarcinoma of the liver, probably originating from the bile ducts. The patient had been constipated at times, due no doubt to this disturbing element in the liver. As far as the chronic ulcer of the stomach is concerned he had never complained of any disturbance in that organ. There were adhesions at base of right lung and the left was adhered to the chest wall so that it was impossible to break up the adhesions without tearing the lung apart. The heart showed thin muscle walls and both anti- and post-mortem clots in both right and left auricles and ventricles, with calcareous degeneration of aortic and mitral valves. The brain was not examined, as permission had only been obtained to make a satisfactory diagnosis of the cause of death."

It was interesting to observe that while the immediate cause of death was due to perforation and its accompanying results, there existed many other conditions that would ultimately have terminated the life of the patient.

**DEATHS FROM LIVE WIRES.**—It is reported that during the recent severe storm in Philadelphia, owing to carelessness in cutting off the electric current, five men and many horses were electrocuted by fallen wires.

## Clinical Department.

### EPIDEMIC PNEUMONIA AT WEST TOWNSEND, MASS.

BY R. S. ELY, M.D., WEST TOWNSEND, MASS.

WEST TOWNSEND is a Massachusetts village of about two hundred inhabitants, situated about ten miles from Groton, and the series of cases of pneumonia, with a very high mortality, which I briefly report may have an added interest on account of the cases of the same disease occurring about the same time at the Groton School, which have attracted wide attention, and on account of the proximity of Groton to West Townsend.

Between Dec. 1, 1901, and Feb. 1, 1902, there have been ten cases of pneumonia in adults in West Townsend, eight of which proved fatal. There were also four cases in children, all of which are either well now, or on the road to recovery. Of the ten cases in adults, eight occurred in my own practice, with six deaths and two recoveries. I judge the other two cases, which I did not see, were similar to mine, from the reports of their attending physicians.

In the above-mentioned cases the disease assumed two types, one a typhoid pneumonia, the other an influenzal, or double, pneumonia. Of the eight that died, four were distinctly typhoid in character. Almost from the onset there was a dry, brown tongue, stupor, low muttering delirium and great prostration.

In the second class, the disease commenced in some as a simple influenza, accompanied by headache, backache, fever and extreme restlessness, the pneumonic symptoms not appearing for a few days; in others there was consolidation in one lung within forty-eight hours, the inflammation remaining confined to this lung for from four to five days to a week, then the other lung became affected, the patient wearing out in from ten to fifteen days. Most of the cases were ushered in by slight chilliness, a temperature of from 100½° to 102½°, and very obstinate vomiting. This latter feature was very marked in the cases classed as typhoid.

Four of these cases were seen in consultation by Dr. Hartwell of Ayer, one by Dr. Stimson of Fitchburg, and another by Dr. L. G. Chandler of Townsend.

**CASE I.** Arthur F., age 35, a hard-working man, of exemplary habits. Had felt poorly for several days. When first seen had a temperature of 102°+; was extremely restless; worried constantly about his inability to work. In from two to three days he was delirious nearly all the time, and kept picking at the bedclothes and tried often to get out of bed; tongue dry and brown; there was but slight consolidation, the upper part of the right lung in front and the lower posterior portion of left being affected. This patient died on the seventh day.

**CASE II.** Andrew F., age 22, a section hand on the Greenville branch, B. & M. R. R. Taken sick Jan. 23, after exposure to cold and wetting

his feet the day previously. I first saw him Jan. 24. Lower lobe right lung was consolidated; respiration 60, and more at time; face cyanotic; temperature  $103\frac{1}{2}^{\circ}$ ; pulse 130. Next day respiration was slower (35 to 40); less fever and slower pulse. He raised characteristic sputa. This patient apparently was gaining, when one night he got out of bed, his attendant being away for a few minutes, but fell back heavily, drew up the bedclothes, and was dead. Duration of sickness, five and one-half days.

CASE III. Mrs. S., age 65, widow. Taken with slight chilliness; temperature  $102\frac{1}{2}^{\circ}$ ; pulse 120. Dry, brown tongue, delirium, marked stupor, deepening as the disease advanced. There was solidification of the lower lobe of the right lung. There was almost no pain, but slight cough and little expectoration. Death on eleventh day.

CASE IV. James M., station agent Greenville Branch, B. & M. R. R., age 41, a man of excellent habits. Initial symptoms were decidedly grippy; headache, severe backache and moderately high fever. Pneumonia involvement of left lung found on the third day; cleared nicely a few days later. He was better for one day, then the pulse became accelerated, and the fever increased. The other lung was involved. This patient was sick in all fourteen days, the last three of which he was apparently gaining. The fever was diminishing, and there was improvement in pulse and respiration. He had better nights and expressed a desire for something to eat. On the fourteenth day towards night the patient became delirious, heart's action became rapidly worse and death ensued a few hours later.

CASE V. Robert K., Nova Scotian, age 45, a strictly temperate, hard-working cooper; this case was almost exactly like the preceding one, excepting that the right lung was first involved; the left lung was affected at the end of first week. He died after a sickness of fifteen days.

CASE VI. Mrs. B., widow, age 61. At onset slight chilliness, moderately high fever, excessive vomiting, the latter lasted from sixteen to twenty-four hours. Middle portion of right lung solid; almost no cough; no expectoration; dry, brown tongue; clear headed until a few days before death. No pain in this case, simply a feeling of weariness. Death on the thirteenth day.

In the treatment of these cases the remedies used were calomel purges, quinin, quite freely at the start, and as the disease advanced, strychnia in doses of  $\frac{3}{16}$  gr. every three or four hours, in some cases subcutaneously; towards the last whiskey and milk regularly, also a free use of oxygen gas in some of the cases.

The two patients who recovered were both women of about sixty years of age. There was consolidation in the lower lobe of the right lung. In one there was a temperature of  $105^{\circ}$  within a day or two, stupor and involuntary evacuation of bowels and bladder; gradual improvement; and out of danger in ten days. The other had profuse vomiting, but gradually improved after the third day. Convalescence in about ten days.

There were four well-marked cases of pneumonia in children: One case occurred in a house where a patient died of the same disease (Case II of my report); the second patient, a sixteen months' baby, was taken sick Feb. 1, the former dying Jan. 25. The woman described in Case VI lived within a short distance of this house and called there while Case II was sick, about Jan. 22 or 23. She was taken sick Jan. 29. This house was quite close to the railway station, where the patient described in Case IV was employed; his work, in looking after freight cars and in helping to load them, frequently called him within a few rods of the house. In one other instance there were two sick in the same house, that is, the station agent (Case IV) and his mother-in-law (Case III), the latter coming down a little in advance of the agent.

As far as grouping of cases is concerned, there were five sick at one time, namely, Cases III, IV, V, VI, and a six-year-old girl, whose case is not included in my report. There were also three children sick at the same time, two on opposite sides of the same street, but about one-fourth mile from the station; the third case was on the same street as the station, but at least one-fourth mile from it. The fourteen cases in this village were all within one-half mile of each other, or nearly so.

We have recently had several cases of la grippe but no more pneumonia complications. They were freely purged and cinchonized at the start. In from three to seven days all were convalescent, no complications having arisen.

## Medical Progress.

### REPORT ON OBSTETRICS.

BY FRANK A. HIGGINS, M.D., BOSTON.

#### PUERPERAL ECLAMPSIA.

THE *Lancet*,<sup>1</sup> in an editorial on "Puerperal Eclampsia," says that among the most important of the problems in obstetric medicine that awaits solution is the causation of eclampsia and the best method of dealing with this disease when it occurs. These questions have been fully discussed by the Germans at Giessen and at the London Obstetrical Society without doing much to elucidate our knowledge of the condition.

The theory that eclampsia is due to a toxic state of the mother's blood is the one that holds the field at the present day, although we are ignorant of the nature of the toxin and of the manner in which it produces its effects. The French School teaches that the liver is the organ primarily at fault, and that the essential condition is one of hepatotoxemia, while the German teaching is that affection of the kidneys in the primary condition, and that the pathological changes in other

<sup>1</sup> Vol. II, p. 1206, 1901.



organs, play but a secondary part, to be regarded as the result of the action of the poisons and not as the cause of their presence in the body. The existence of the toxemia of pregnancy upon which so much stress is laid by many writers as the *font et origo* of the majority of disorders of pregnancy is hardly as yet placed upon a firm scientific basis. There are many blanks in our knowledge between such a toxemia and some of the diseases which it is supposed to produce. We are at present in considerable danger of basing our treatment of eclampsia upon a theory which further investigation may show to be far from the truth, although the toxic theory no doubt furnishes a good working hypothesis.

The occurrence of convulsions during labor is a complication of so alarming a character and so grave a nature that there is danger of our bestowing too much attention upon the convulsions and too little upon the very important pre-eclamptic condition, the condition of the patient preceding the onset of the convulsions. We are inclined to think that if a correct knowledge of the causation of eclampsia is ever to be arrived at, attention must be mainly directed to the pre-eclamptic stages of the disease. Further investigations must be devoted to careful observation of all departures from the normal in the health of pregnant women. Then only will it be possible to practise preventive medicine in the case of the pregnant woman and the fetus in utero. The opportunities for scientific study of the various problems connected with pregnancy are at the present day almost *nil*; the length of time such patients remain in lying-in hospitals before their confinement is too short for any prolonged observations to be made, and work of this nature is impossible in private practice. It is an encouraging sign to see that a bed is to be endowed and set apart for the study of the diseases of pregnancy in the Royal Maternity Hospital at Edinburgh. We can imagine no more worthy object for philanthropy than the endowment of such beds in some of our large hospitals, where the diseases of pregnancy and of the unborn child could be investigated with all the advantages of modern science. It is by research in this direction that we are most likely to gain a true knowledge of the problems of eclampsia and of the best means of preventing this dangerous complication of pregnancy.

#### ECLAMPSIA.

Dr. Heizfeld<sup>3</sup> says that out of 81 post-mortem examinations in eclamptics 22% of the cases showed a bilateral compression of the ureters. He says that in primipæ who give evidence of eclampsia during the period of cervical dilation, ureteral compression is exceedingly common. He believes that eclampsia is the expression of an intoxication due to the circulation in the maternal blood of toxins developed from her own and the fetal catabolism. This theory, which to his mind

is equally tenable with that of uremic poisoning, points the way to prophylactic measures.

#### PUERPERAL GANGRENE.

A case of puerperal gangrene of the foot is reported by Wormser.<sup>4</sup> A prepatellar bursitis had developed three weeks before labor, with pus and considerable fever present. In this condition the patient, 34 years old and in her sixth pregnancy, was brought to the hospital with two fistulous openings in knee. She was delivered on the same day, and examined but once internally under the precautions of a sterile rubber glove. Bronchitis and diarrhea then set in. Three days after delivery a large foul-smelling clot was removed from the uterus, followed by intra-uterine irrigation. The prepatellar abscess was incised and evacuated, quickly healing. The temperature again began to rise and more putrid clots were removed. The uterus was curetted. On the twelfth day after delivery gangrene began on the left foot, which became more marked on the following day. Death occurred 2½ days later, no time being left for the line of demarcation to set in. The autopsy confirmed the clinical diagnosis of general septicemia due to streptococci, as ascertained by the chill, fever, pulse, articular involvement and the bacteriological findings in the lochia. The post-mortem diagnosis of gangrene was based upon thrombosis of various venous radicles in the affected area, there being no involvement of the arterial system; in addition there was found a separation of the symphysis. The author unfortunately omitted to examine the pus in the prepatellar abscess, and can therefore not state with certainty whether the streptococci found in the endometrium, which were responsible for the general infection, originally came from the prepatellar abscess. The patient stated emphatically that she had not been examined outside, and she was once examined during her labor, and that with the aid of a sterile glove. The author states that the gangrene can take place in one of three ways: either by interruption of the venous and articular circulation, or by both. The latter is the most common, and was present in the first case the author reports; rarer, however, is the pure arterial involvement, and, the rarest of all, the exclusive participation of the venous system, as was present in this case.

#### THE FETAL HEART.

Interesting clinical observations on the fetal heart beat were made on a favorable case by the Italian obstetrician, Rivolta.<sup>4</sup> His patient, at the fifth month of gestation, with placenta previa, was hastily delivered of an apneic and exanimate fetus. The fetal thorax was opened immediately and the pericardial sac freely exposed. A curious discovery was then made which, if it be found to represent a normal state of affairs, would revolutionize in part our knowledge of the fetal circulation. It has generally been believed that, with

<sup>3</sup> Centrbl. f. Gynäk., Oct. 5, 1901, p. 1111; New York Medical Journal, Dec. 7, 1901, p. 1073.

<sup>4</sup> Philadelphia Medical Journal, 1901, II, 729.

<sup>4</sup> Loc. cit., 1901, II, 1011.



the exception of the two characteristic fetal conditions of patent foramen ovale and the guiding Eustachian valve, the fetal heart behaves, when in action, precisely as does the adult heart, that is, as pertains to its method of contraction. Until compelled to leave the fetus to attend to the after-treatment of the mother, Professor Rivolta was privileged for about the space of eight minutes to observe the pulsations of the exposed fetal heart, and was surprised to note that the contractions of the four heart cavities were not as in the adult. The rate of pulsation, when first noted, was 24 beats per minute, and at the end of the observation this had fallen to 17 beats per minute. The order of rotation was as follows: Beginning with the pause, the right auricle contracted first, being immediately followed by the left auricle, the wave of contraction in both cavities moving from above downward; a brief pause followed and then, the auricles still being in systole, occurred the contraction of the right ventricle, and immediately afterwards that of the left ventricle. The cardiac impulse began with the ventricular systole and reached its maximum at the height of the systole, that is, when the ventricle was empty. The heart was practically bloodless during the time of the observation; hence it is probable that the production of the impulse did not arise from the amount of blood in the ventricular cavity, but was purely muscular in origin, a contraction of the fibres of the ventricular walls. Notwithstanding this absence of blood, the heart showed the same impulse, the same rotation on its longitudinal and transverse axes, and the same rising of the apex and descent of the conus arteriosus and base of the aorta, as if there were the usual full-blood stream in the cardiac cavities. It is unfortunate that the condition of the mother prevented a close observation of the fetal heart until complete cessation of its action. Aside from the interest attached to an actual observation of a pulsating heart for a comparatively protracted period, the unusual sequence of events, unusual as far as our knowledge goes, is most suggestive. We have been informed by eminent embryologists that but little is known concerning the action of the fetal heart other than the points already mentioned, and that it has always been believed that the contraction of the cavities followed the rule in the mature heart. The observation of Professor Rivolta will doubtless stimulate other obstetricians to a closer observation of this matter. It may be that many of the prematurely discharged fetuses of five and one-half to six months, apparently giving no signs of vitality, would reveal for short periods after birth cardiac contractions which would well reward the time given to the examination of their thoraces.

#### CORRECTION OF OCCIPITOPOSTERIOR POSITIONS.

Dickinson<sup>5</sup> says a simple method, always worthy of trial and often successful, is the seizure of the ear and the exertion of pressure or traction to turn the head. The manœuvre is available when-

ever the ear is within reach. Two fingers are pushed in beneath the pubic arch and the ear caught between their tips. The middle finger being longer than the index, would be better placed against the back of the ear if the reach is a long one or the patient stout or sensitive. The index finger, however, with its greater strength, has more pushing power when its tip lies behind the ear. But whether one finger or the other goes to the mastoid side of the ear is not material nor does it matter whether palmar or dorsal aspect of the finger is applied to the head. Palm towards pubes gives the longer reach. The cartilage of the concha furnishes a resisting projection on which pressure is exerted, or the flap of the ear gives a handle to pull upon. During a pain that rotation which has been gained is held and progress is resumed after the passing of the pain. It is his practice to overcorrect except when the head is on the pelvic floor, or when descent is rapid. That is, if the head is engaged, or midway in the pelvis in a right posterior position, it is turned to left anterior, provided no undue resistance suggests excessive torsion of the neck. Then one expects the untwisting of the trunk to draw the head back to the right anterior. It goes without saying that flexion must be maintained or faulty flexion corrected, and also that the chin must not be swung around beyond the shoulder. In attempting the swing through the half-circle, that shoulder which is above the pubes must give assurance to the operator that the trunk is swinging with the head. The lateroprone position across the bed sometimes proves advantageous.

The anterior ear offers a better purchase for rotation of the occiput forward than any other simple method, whenever it is within reach.

#### INTERSTITIAL PREGNANCY.

R. H. Pierson<sup>6</sup> reports a case of interstitial pregnancy as illustrating a type of ectopic gestation seldom recognized, which may under favorable circumstances progress to full term and terminate in a practically normal labor. The gestation originally occurred in that portion of the tube within the thickness of the uterine wall—the interstitial portion. As the ovum matured it forced open the uterine end of the tube, and abortion, after repeated attempts on the part of the patient, occurred through the uterus. To diagnose the condition prior to abortion and exploration is difficult or impossible. In this case digital exploration after the abortion showed the placenta attached in the left cornu and continuing through a ring about one-half inch in diameter in the side of the uterus, into a cavity outside the uterus. This opening in the uterus corresponded to the location of the uterine end of the Fallopian tube. Its margin was a distinct ring which felt firmer than the rest of the uterine wall. The cavity in the tube was about two and one-fourth inches in length and was filled with placenta tissue. If the placenta forceps had been used and the uterine placenta simply twisted off, the tubal portion

<sup>5</sup> American Medicine, Sept. 7, 1901, p. 361.

<sup>6</sup> New York Medical Journal, Dec. 7, 1901, p. 1047.

would probably have remained to become a septic focus, and only a post-mortem or subsequent exploration have revealed the true condition.

The author says there are two questions of interest in the consideration of this case: What was the relation of the uterus to the tubal cavity while the fetus was in the uterus? And what would have been the result if the pregnancy had not been interrupted? From the condition of the tubal orifice, its distensibility, and the fact that the tubal cavity held so much placental tissue, he believes that when the uterus was distended by the presence of the fetus, the ring was much larger than when first observed, so that the cavity was practically included in that of the uterus. As gestation progressed and the uterus enlarged it is possible that, by the time the pregnancy was completed, the relations would have been nearly those found in the normally pregnant uterus, and the labor at full term would have occurred and a satisfactory result have taken place without interference of any kind.

#### INFILTRATION OF URINE IN LABOR.

A case of rupture of the bladder followed by urinary infiltration is reported by Horn.<sup>7</sup> The patient, 31 years old, in her fourth labor, which was long, was delivered by forceps, and apparently suffered from some injury to the bladder, as the urine was mixed with blood. On the fourth day the patient was in a very bad condition, pulse very weak, there were evidences of septic infection, the lochia contained urine, and a diagnosis of septic infiltration of urine about the bladder was made, with an unfavorable prognosis.

The patient died on the sixth day. There was an opening found between the uterus and the bladder, and infiltration of urine throughout the pelvis. The opening was partially closed by the contraction of the uterus, but allowed leakage into the surrounding tissues. Incision washing out and drainage might have been of use if the rupture had been recognized early.

#### ABDOMINAL INJURY IN PREGNANCY.

A case showing unusual tolerance to severe injury and operation in pregnancy is reported by Gloninger. The patient, about five months pregnant, received a bullet wound through the stomach, transverse colon, and lower lobe of the liver, the bullet passing into the left innominate bone. The perforating wounds were sutured, the abdomen was drained and the patient made an excellent recovery. About four months after the receipt of injury she was delivered of a healthy female child. By the promptness and skill of the operator the lives of both mother and child were undoubtedly saved.

#### CASES AT THE UNIVERSITY OF PENNSYLVANIA MATERNITY.

Remington<sup>8</sup> reports a number of the more interesting operations and cases occurring in six

<sup>7</sup> Muench. Med. Woch., July 30, 1901, p. 1243.

<sup>8</sup> University of Pennsylvania Medical Bulletin, July, 1902, p. 154.

months. One was a large ovarian cyst simulating pregnancy, for which abdominal section was performed. Another was for a pyosalpinx, supposedly an extra-uterine pregnancy, in which it was believed that the patient had been infected in a self-induced abortion. A case of loose symphysis pubis becoming manifest several times through several pregnancies is recorded. In the fifth month of the patient's second pregnancy she began to have pain in the region of the symphysis, which was made worse on walking. She limped, and the left leg seemed to be shorter than the right. When walking, sitting or lying down she needed support. Nine days after delivery she was up and walked without limping. During the third pregnancy she developed the same symptoms at about the same time, and after delivery there was no trouble. During the fourth pregnancy pain and a limping gait developed at about the fourth month, and during her fifth and last pregnancy the same symptoms developed at the third month. Then for the first time she felt the bones at the symphysis move. She was up and around on the seventh day. For the first time in the puerperium she suffered pain at the symphysis and had a limping gait. Vaginal examination in the erect posture showed that the left pubic bone moved up and down about one inch at each step. She was treated with rest, binder and sandbags. One month later she was up, with a little pain noticed in the morning over the left sacroiliac joint. She walks without inconvenience, but there is slight motion noticed at the symphysis on walking.

#### THE PREVENTION OF ASPHYXIA IN DELAY OF THE AFTER-COMING HEAD.

A recent revival of some of the methods of the prevention of asphyxia in delay of birth of the after-coming head by the introduction of a tube or catheter into the child's mouth, has led Dr. Blacker, in the *Lancet*,<sup>9</sup> to publish an historical note on this subject. He quotes from earlier writers, and gives the credit of originating this method of preventing fetal asphyxia to Benjamin Pugh. In conclusion he says that hardly any of the writers of modern textbooks on obstetric medicine refer to Pugh's method of overcoming the danger from asphyxia when the birth of the after-coming head is delayed, and in this omission they no doubt exercise a wise discretion. The passage of a catheter or special tube into the child's mouth when the head is lying high up in the pelvic cavity is only likely to lead to a waste of valuable time, while if the head is sufficiently low down in the pelvis to admit air reaching the mouth, if the perineum be retracted, its immediate extraction should be a matter of little difficulty.

The instances recorded by various observers show that in cases of extreme emergency it is possible to keep a child alive by the use of one or the other of the methods described for a considerable length of time. At the present day, however, when our means of delivering the after-

<sup>9</sup> Vol. II, 1901, p. 1033.

coming head, either by combined shoulder and jaw traction, or, better still, by the application of forceps, are so certain it becomes a question whether it is not better practice to extract the head at once, even at the risk of a bad tear of the perineum, rather than to attempt to initiate the act of respiration while the head is still within the vagina. The warning of Barnes should not be forgotten. Speaking of Pugh's device he says: "I must warn you not to trust to these or similar plans, lest the golden opportunity be irretrievably lost. The real problem is to get the head out of the pelvis," and to this advice one may safely add the qualification, "*as rapidly as possible.*"

#### UMBILICAL INFECTION.

Infection at, or soon after, birth is fast becoming recognized as a frequent cause of infantile mortality. Porak and Durante<sup>10</sup> report in full four cases of general septicemia, the point of entrance in all cases being the umbilicus. The local, umbilical symptoms are suppuration, gangrene, erysipelas, hemorrhage, etc., often hardly enough to attract attention. The infection may enter along the umbilical vessels or along the embryonic tissue of the cord. In the former case, there are no local symptoms. General septicemia follows. The liver is most often affected, the lung coming next in frequency. In the liver, degeneration occurs, with jaundice. Secondarily, dyspepsia may also occur. Two other cases with jaundice are described.<sup>11</sup> The worse the local symptoms, the less dangerous, as a rule, is the infection. But these cases show how careful the physician must be in his work upon the umbilical cord.

#### PHTHISIS IN PREGNANCY AND LABOR.

Kaminer<sup>12</sup> gives a table of 50 cases showing the influence of labor and pregnancy on phthisis. He does not believe that pregnancy should be terminated to prevent the subsequent existence of a person who would probably become tuberculous. He refers to 15 cases under his observation in which labor was artificially interrupted, and two cases in which it occurred spontaneously. In 12% of these cases death occurred; in 30% there was a marked increase in the severity of the disease; and in 70% there was no change noticeable. In no case was there any suggestion of a real cure. This is strongly against Maragliano's belief that pregnancy should be artificially interrupted for the benefit of the patient. Kaminer believes that it does not aid the patient, that it is much more likely to make the patient's condition worse, and at any rate, any little aid given by this method is only through the loss of the child. In many instances he believes that one is justified in interrupting the pregnancy, but that this is practically never one's definite duty, and at any rate a decision cannot be reached by following a general law, but only by observing each case. The most important

point is to prevent conception in phthisical subjects.

#### THE QUESTION OF OVARIAN PREGNANCY.

Webster<sup>13</sup> reviews briefly the subject of ovarian pregnancy. He cites from his monograph published in 1895, on ectopic pregnancy, in which he says that after a study of records of alleged ovarian gestation, there was no proof that a pregnancy had ever started in a graafian follicle, and that it seemed to him that such an occurrence was improbable, though he did not commit himself to the statement that it was impossible. He mentions the case of Van Tussenbroek, demonstrated at the Third International Congress of Gynecology at Amsterdam in 1899. He says this exhibition served to confirm the belief of those members of the congress who had always recognized the possibility of the occurrence of ovarian gestation, and dispelled the doubts of others who had always been skeptical. There are several conditions which closely simulate ovarian pregnancy. Pregnancy in an accessory tube may easily be mistaken for ovarian pregnancy, if the ovary of the same side becomes closely adherent to the pregnant tube and a normal tube is found independent of the gestation sac. Also if the ovary was very small or absent, and the gestation sac lay behind the normal tube; or when the pregnancy takes place in an accessory fimbriated extremity, or in a diverticulum of the tube. A mistake is easily made in the case of a gestation which begins on the ovarian fimbria. In a similar manner a pregnancy growing at any part of the fimbriated end of the tube may so involve the ovary, that it may be regarded as the original seat of the pregnancy. He gives Dr. Van Tussenbroek the greatest credit for the thoroughness with which she has investigated her specimen, and while her work was of value, yet he is not yet convinced. He admits that section through the ovary demonstrates very closely that the pregnancy was undoubtedly situated in the organ, and that while the gestation may be readily conceded to be topographically ovarian, it is a matter of some doubt whether the ovum was at first implanted in true ovarian tissue. He says that Van Tussenbroek's claim that an ovum was fertilized in its follicle is a pure assumption and in no sense proved; that undoubtedly the microscopic appearances have strongly suggested this view to her, but these same appearances are capable of other interpretations.

He remarks that the investigations of Berry Hart and himself have made evident the unreliability of all published accounts of the primarily abdominal variety of ectopic gestation.

A CENTENARIAN.—Mrs. Celeste Long, née Broussard, said to have been the oldest woman in Louisiana, died in New Orleans recently at the reputed age of 104 years. Her mother was one of the refugees who came with Evangeline to Louisiana in 1769.

<sup>10</sup> Arch. de Méd. des enfants, June, 1901.

<sup>11</sup> Philadelphia Medical Journal, 11, 820.

<sup>12</sup> Deutsch. Med. Woch., Aug. 29, 1901; Philadelphia Medical Journal, February, 1901, p. 1121.

<sup>13</sup> American Medicine, 1901, 11, 993.

## Reports of Societies.

### BOSTON SOCIETY OF PSYCHIATRY AND NEUROLOGY.

J. W. COURTNEY, M.D., SECRETARY.

REGULAR meeting, Nov. 21, 1901, Dr. P. C. KNAPP in the chair.

Dr. G. L. WALTON read a paper entitled

A CONTRIBUTION TO THE STUDY OF SPINAL FRACTURE WITH SPECIAL REFERENCE TO THE QUESTION OF OPERATIVE INTERFERENCE.<sup>1</sup>

Dr. C. B. PORTER: I am thoroughly in sympathy with the writer in what he has recommended, but up to the present time I have not had much experience in spinal surgery, and I prefer to listen. I will merely remark that I regard interference as important in most cases.

Dr. M. H. RICHARDSON: From the anatomical standpoint the feasibility of rapid exposure of the spinal cord is conspicuous. I think operation can be done in an extremely short period of time so that the shock is not great, although in cutting through the great muscles of the back there is always a good deal of hemorrhage. The chief point that interests me, the crucial point in fact, is the question of indication, as to the advisability of operation, and this question cannot be settled until we have had a very large experience. I have seen a number of broken necks from diving and from falls. One of these Dr. Porter operated upon in my service. Another was a woman injured some years ago at Keith's Theatre. Another I operated upon. A number were not operated upon. My experience in broken necks is that whether operated upon or not they have been invariably fatal, although the operation has been very feasible, and no complications have arisen due to the operation. Surgery gets the credit of the death but does not deserve it. It is not like tentative operations in injuries of the skull. I have seen several dreadful consequences of operation in cerebral surgery, such as tremendous hernias of the brain and things of that kind, in patients doing fairly well before the operation was undertaken. In spinal surgery I do not see that anything of that sort could happen. This belongs to the category of questions difficult of settlement owing to small experience. This group of fatal operations in broken neck does not prove, however, that if we can apply the remedy to a large number of cases we should not occasionally have a brilliant recovery. In broken neck it cannot be denied anatomically that there may be a sufficient temporary pressure upon the cord, so much smaller is it than the brain, to lead to its disorganization. The same thing is true lower down. I suppose that we ought in these cases to follow a definite rule. We know what happens in these cases if we do not operate; we have had hundreds of years of observations. We do not know what will happen if we

apply skilfully and quickly remedies for relief of pressure. I should be in favor of more frequently resorting to operation. They are desperate cases; we know what happens if these patients are not operated on — everything to gain, very little to lose.

After all, we must be guided (in the question of hemorrhage that may absorb or temporary pressure) in these cases by the neurologist, and I am glad, although I may have opinions of my own, to operate when the specialist says operate and not to operate when he says not to operate. I am afraid that the outlook is not very bright.

One word about the technique. It seems to me a very feasible operation, the only danger being in damaging the cord with the rongeur forceps. If the laminæ can be easily exposed, and one can be cut through with instruments that will not press down upon the cord, any number of laminæ may then be removed very rapidly indeed.

Dr. J. J. PUTNAM: From the practical point of view I am inclined to agree with what Dr. Walton has said, as to the advisability of operating; but when it comes to justifying this procedure by explaining its action, we are still largely at sea. When improvement takes place after operation, or even complete recovery, as occasionally happens, we are very ready to credit the surgeon with the result, whereas, in fact, a very considerable degree of improvement often occurs without operation. It would be well if we should discuss even theoretically some of the actual conditions in which a difference is made by operation. Of course, if fragments of bone are actually pressing on the cord it would be desirable to remove them, but even besides that I imagine there are a number of conditions which are susceptible of being talked about with some intelligence. I should think it was quite possible that drainage might occur better and that the tendency to edema would be less after operation, partly in consequence of the free bleeding and partly from the general opportunity for the escape of fluids surrounding the injured parts. I have always supposed, on the other hand, that the danger of extension of inflammatory tendencies would be greater after operation, especially in the first stage, and for that reason it would be better to wait; but in these days, when operation is so carefully guarded, I dare say even the reverse is true. At any rate the matter is still in a good deal of obscurity.

Dr. H. L. BURRELL: I have been very much interested in Dr. Walton's paper, and I have gained a great deal of knowledge from it. In my own mind I have divided these cases into three different classes, and the division is made in reference to the condition of the cord: (1) Those cases where the cord is irremediably damaged; (2) those where the cord is pressed upon, and by an operation one can relieve pressure; (3) where pressure from some cause has taken place and has let up. Until we can be assured by methods of diagnosis what the condition is in an individual case, it seems to me it is our duty to do an opera-

<sup>1</sup> See page 247 of the Journal.

tion on practically all cases except those where there is an obvious irremediable damage to the cord,—where, for example, it has been cut in twain,—and there, of course, it would be perfectly absurd to operate. By the by, may I inquire who published the case of suture of the cord?

DR. G. L. WALTON: That was reported at the American Medical Association.

DR. BURRELL: I heard in New York that the case was said to be really improving.

So far as the diagnosis of these injuries is concerned, until more light is given me I shall certainly continue to operate on practically every case.

In regard to the technique, I have found that the heavy muscles of the back can be readily separated from the laminæ if one simply controls the hemorrhage by the pressure of gauze packing and does not attempt to use hemostatic forceps. In the removal of the spinous processes and laminæ I have used various forms of rongeur forceps, and have found that the best are Dr. Munro's forceps; they simplify the operation; they render it facile, enabling one to remove the laminæ quickly and readily with but little fear of injuring the deeper structures.

In regard to drainage, I was surprised that drainage was used. I can see the reason that Dr. Putnam has given for its use, but, personally, I have never drained an operation wound for fracture of the spine.

DR. J. J. PUTNAM: I did not, when I used the term "drainage," mean putting in a drainage wick; I meant that opening the dura might allow a better escape of fluid into the tissues.

DR. S. J. MIXTER: Before speaking of a case that has already been reported I want to say I most thoroughly believe in drainage in these cases. I believe that the dura should never be sewed up. I also believe that in many cases it is better to leave in a small wick, which may be removed in the course of two or three days. The only objection to that is the very slight danger of sepsis which has never occurred in the cases I have seen. It seems to me it offers a better chance for repair to take place after we relieve all pressure, and with the laceration that takes place in the wound through the skin clear down to the cord itself we have the possibility of hemorrhage and blood clot in spite of coaptation of the deep parts of the wound, and therefore I believe a small wick does more good than harm, and I always use it. I say always—I have used it in every case I have operated upon (four or five). I have operated on two broken necks and two or three broken backs.

A successful case was one where there was complete loss of sensation and motion, and that has made a good recovery, the only thing now being a slight toe drop and wrist drop on one side. The case was as unpromising when I saw it as almost any case not in *articulo mortis* could be. Of course we see these cases of severe injury (temp. 104° to 105° F.), which are evidently fatal, and that brings me to another point, which I

think has not been touched upon sufficiently, and that is the question of when to operate on these cases; that is to my mind, the very first moment possible. The cases I have seen that have not been operated upon have been generally those seen after two, three, four or five days, with the very high temperatures you get in so many of these cases of broken neck. One case with broken neck I operated upon, although a fatal case, seemed to me to be encouraging as far as it went. The patient had, when I saw him, been injured several days. He had had a high temperature, 104°; looked very badly, was jaundiced for some reason I do not know what, and was certainly in wretched condition. I operated. In that case I felt there was pressure on the cord, and there was a certain amount of laceration of the cord which could be distinctly seen. The bone was driven into the cord, and one could see the crushed fibres torn across. Much to my surprise the man improved and lived, I think, a month or two following the operation.

As to the question of the cases getting well without operation—it seems to me that is something we cannot determine in any given case. We know that many cases of fracture of the spine have been reported where operation has been done months and years afterward and the patients recovered. How much greater the chance of recovery if the cases are operated on early! Therefore, I should say, by all means operate on every case.

DR. J. C. MUNRO: Since my discussion of a paper on "Fractures and Dislocations of the Spine" at the last meeting of the American Surgical Association, my opinions have not changed, and I will, therefore, repeat essentially what I said then. I shall emphasize the radical or operative rather than the conservative or nonoperative treatment because, up to the present time, the advocates of the latter policy have not conclusively shown that better results are to be expected than where there has been surgical interference. I would not have you conclude from this that all traumatic cases should be subjected to operation; there are contra-indications, not only in the local conditions, but in the various general conditions, that militate against any operation, but these contra-indications should be weighed and judged by the surgeon, and not by the specialist, whether neurological or medical, and upon the surgeon should be placed the final responsibility of operating. We must start at the very outset in fracture-dislocation of the spine with this general equation, that all such injuries are perhaps the most serious as regards restoration of function with which we have to deal, and that the outlook, both as regards function and life, is bad under any form of treatment. It is a common argument and one not easily answered,—but the argument is none the less fallacious,—that recovery after operation would have taken place equally well without operation. As a matter of fact, there are very few surgical conditions that will not at times recover spontaneously. A strong

counter-argument is the not inconsiderable number of recorded cases treated conservatively for weeks or months without gain, that have steadily and surely improved after operation; not always *propter hoc*, perhaps, but with every clinical evidence that the operation has proved the turning point. The risk of the operation, *per se*, may be disregarded, provided the initial shock of the accident has subsided. The number of my own cases, 21 in all, may be too small from which to draw definite conclusions on some mooted points, but it is plenty large enough to answer one question with regard to the operation, the question of shock. I can recall only one patient in whom there was a temporary anxiety as to his condition. In spite of all the brilliant neurological work that has been done within the last few years, it is not yet possible to absolutely state the exact amount or nature of the damage done to the cord.

DR. J. J. THOMAS: Of course we know that there are certain classes of cases of injury to the neck and spine in which operation is distinctly indicated,—those cases where we are pretty certain that pieces of bone are driven in by a missile, as a bullet, for instance,—but aside from these cases, the majority are those of which Dr. Walton has been speaking more especially, where it is difficult to make the distinction Dr. Burrell has clearly brought out, as to whether there is complete crush of the cord or a partial injury of it. It seems to me our efforts as neurologists should be directed towards determining what symptoms or combination of symptoms show a complete and total destruction of the cord, and see if we can find what the indications for or against operation are. I think Dr. Walton will agree that that is a desirable thing to attain. In the individual case, as brought before us, it is often extremely difficult to say whether that individual case belongs in one class or another. My own feeling is that in most cases where it is supposed that a total crush of the cord has existed, and operation has resulted in recovery of the patient, the facts are that the examination of the patient was not complete, that all the functions of the cord were not examined, so that when the report is made that there is complete abolition of the functions of the cord it was because of an incomplete examination. In most cases where all functions of the cord are destroyed we can be, after careful examination, *very sure* that the cord is totally destroyed. That may not be always true if we speak of the condition of the patient immediately after the accident; but certainly, if Dr. Walton is right in his belief that immediate operation is not necessary, that a matter of several hours makes little difference in result, then we are justified in waiting, say, six, twelve, or even forty-eight, hours. I myself should wish to wait, if the patient's condition warranted it, to see if there was a change in the symptoms noted at the time of first examination. Of course the presence of symptoms absent before would prove that the cord was not completely crushed. And then comes in the question of treatment; and as one of those who

do not believe in indiscriminate operation on all cases, let me say distinctly that when I advise against operation I do not mean by that wait and do nothing, but to make every effort to fix the fractured spine so that further damage shall not be done; and here we have a practical difficulty in the surgeon's field to decide, whether it is possible to fix the spine. In many cases, if there is fracture of the bodies running forward and downward, or backward and downward, it would be almost impossible to apply any apparatus or extension to hold the spine in place. If the risk of moving the patient by persons, perhaps careless or ignorant of moving patients, is great enough, so that in this manner a partial lesion is likely to be converted into a total one, then that risk should be removed by operation. I think, however, that in the great majority of cases of partial lesion, with care it ought to be possible for the surgeon, by means of orthopedic methods of some sort, to hold the spine so that danger of this kind would not occur. If these methods are adopted and prove insufficient, the operation could still be done perhaps twenty-four hours later. The sweating Dr. Walton referred to, in the one or two cases where I have seen it present, was, I think, rather an irritative phenomenon than a paralytic one.

DR. JOHN C. MUNRO: As to the question of irremediable damage to the cord, I do not believe it can be answered yet. There are cases reported by excellent neurologists as irremediable damage of the cord which have recovered.

As to drainage, I believe it is better to let out the serum from the muscular tissues for 24 to 48 hours, and I have used Dr. Burrell's rubberdam drain. That lets out the excess of hemorrhage that is apt to occur in change of position and the excess of serum. It does not drain the dura permanently; the wound closes at once.

Dr. Thomas speaks of making complete examinations. They must be incomplete in these emergency cases. There are certain cases of neurological lesions that are examined by neurologists who can take plenty of time. I think Dr. Thomas will recall one where some months were taken for most careful examination by two excellent neurologists, and yet under those circumstances one man, I believe, located the lesion outside the dura, the other inside the dura. It seems to me in these emergency cases you cannot expect anything more accurate, and that you must go on general surgical principles.

DR. W. N. BULLARD: I have studied these cases with much interest for several years, and when I first began the study of them I was inclined to advise operation in nearly all cases of fracture of the spine. I am growing slightly more conservative, but at the same time I believe on the whole that it is better to operate in practically all cases where there is no contra-indication, either surgical or otherwise. I looked over a few of my cases this afternoon to see the results obtained. These cases are all cases that have been seen by me at the City Hospital, the records of whi



have made personally, 37 in number. Of these 18 were operated and 17 not, and the deaths in the two classes of cases were exactly the same, 10 in each. Of course from statistics like these one can tell very little, because in certain of the cases not operated the condition was such that the patient was likely to die shortly under any conditions, and, in fact, of those cases not operated on I advised against operation in eight; in the other cases I gave no advice, as far as I know. These cases were operated upon by different surgeons and at different times, I think all since 1893. Of the cases operated upon, two were cases which we should not now probably operate upon, done in the early days of laminectomies, and died on the table. Out of the 18 cases operated, pressure was noted in four. It seems to me that while we can make certain distinctions in regard to the severity of the injury, we cannot go so far as to be certain when our cord is severed. The opportunity for examination is in many cases wanting. We have not the time, nor would it be for the patient's interest, to make such an examination. The cases should generally be operated upon as soon as possible, taking into consideration the condition of the patient. I should not operate in shock unless I thought there was necessity for it. Wait until shock is over and then operate immediately.

DR. MORTON PRINCE: I would like to ask Dr. Walton, before making a few remarks, whether, in this case which he reported, at the operation they found signs of pressure on the cord at the time?

DR. WALTON: It was a little difficult to say with certainty. The arches were depressed and impacted, and it was difficult to determine with certainty whether they were really pressing on the cord or not.

DR. PRINCE: I think one of the most important contributions of Dr. Walton's paper is the fact he has brought out, that with every symptom of total destruction of the cord, such destruction could not have been present. That fact alone must make us recast many of our ideas, and think twice in deciding upon cases.

DR. MIXTER: I have seen several cords exposed where you could not see anything definite in the way of a lesion, and yet there was absolutely no return of function.

DR. PRINCE: That is the point I want to bring out.

There are two cases in the hospital now to which I would like to refer, not with the idea of reporting them, but simply to bring out a point—two cases operated on, and I am responsible for the operation in each case: one in the service of Dr. E. H. Nichols, the other in the service of Dr. George Monks. I think the results are as favorable as any cases I have seen. Dr. Nichols' case is a fracture of the cervical vertebræ, paralysis of all four extremities, with loss of control of the bladder. It was a partial lesion, as shown by the fact that sensation was not impaired. That patient has shown extraordinary improvement in

the past six weeks. Shortly after operation he regained control of his bladder, and now he can move his arms to a certain extent.

The other case is a dorsolumbar fracture. That case has remarkably improved as far as the legs are concerned. He has not regained control of the bladder, but the area of anesthesia has cleared up considerably, the anesthesia being due to the cord lesion. I want to point out that in both those cases the same condition, I think I am right in saying, was present; no pressure upon the cord could be detected.

Dr. Strong and I have undertaken to make a new study of all the cases that have occurred in the City Hospital from the beginning, with the idea of comparing the results in the operative cases with the others, and to compare them in a more careful way than is usually done in statistics—to compare not only the final results, but to take the favorable cases in each series and compare each with each, and not the severe of one with the light of the other, etc. The work has not been completed.

DR. BULLARD: I stated that out of 18 operations for laminectomy there had been 10 deaths. Out of three cases of laminectomy, pressure was relieved, according to my notes taken at the time, in four, and there is reason to believe that that is not always noted in hospital reports unless there is a marked bone pressure sufficiently evident to make an impression on the recorder.

DR. H. C. BALDWIN: At the time Dr. Mixter reported a successful case of operation for fracture of the cervical vertebræ, I looked up the statistics at the Massachusetts General Hospital for fracture of the cervical vertebræ. Since 1870 there have been 37 cases of fracture of the cervical vertebræ. Four cases were operated on. The case which Dr. Mixter reported was the only case of the 37 in which death did not occur within a few hours or a few days. I did not see Dr. Mixter's case before the operation, but saw it very soon after the operation. The condition of the patient at the present time would lead one to think that there was a hemorrhage into the cord at the time of the accident. The patient has partial paralysis of one arm and a spastic condition of the leg with toe drop on the same side, with complete loss of sensation for heat and cold and loss of sensation for pain on the opposite leg and on half the body. I have been very much interested in following these cases of fracture of the vertebræ. It is, of course, impossible to tell to what extent the cord has been damaged before operation. In most cases where operation has been done, nothing abnormal can be seen in the appearance of the cord, the injury being done to the anterior portion of the cord or consisting of a hemorrhage into the cord. In two cases under my observation, marked improvement has followed operation; in other cases which I have followed and where there has been no improvement, the operation has not seemed to me to have increased the discomfort of the patient in any way or reduced his strength.



DR. E. W. TAYLOR: Apparently the question is, as to where the burden of proof lies. The neurologists, or some of us, think the burden of proof lies with those who advise operation, that they must prove in a reasonably scientific fashion that improvement does take place after operation for such injuries. It seems to me that is the point of view to take, and I should like to put myself with the minority this evening on the conservative side, that operation is indicated in but very few of these cases. In certain ones it is indicated, as Dr. Thomas, among others, pointed out in his excellent paper a year ago, but in most of the cases the proof is not yet forthcoming that anything substantial is accomplished by operation.

I should disagree with Dr. Munro in his statement that this is not a medical problem. It seems to me decidedly a medical and not a surgical problem at the outset. It matters relatively little how far the bones are fractured provided the cord is not injured. If the cord is injured the case becomes at once a subject for accurate diagnosis.

One thing which has not been taken up at all tonight is the question of what actually happens; that is what we want to know, and there it seems to me is our chief aid. Dr. Prince has suggested this in arriving at conclusions as to the future.

We have heard a good deal about pressure, but no definite statement has been made as to what is meant by pressure. I presume what is meant is the pressure of bone on the cord. That once exerted naturally injures the cord very seriously, and I doubt very much whether the continuance of that pressure leads to any exacerbation of symptoms or the relief of pressure to removal of the symptoms to any great degree. We have no satisfactory evidence as yet showing that nerve fibres once injured recover, therefore if once injured the mere removal of bone, even if it be a spicule of bone sticking into the cord, would have small effect on the relief of the condition. Dr. Walton has said that the operation lessens pain, makes the patient more comfortable. He has not said why that is so. I cannot see why an operation should lessen the pain; on the contrary, it is adding what must be considered a serious surgical procedure to a condition already sufficiently pitiable. It is further wrong to say that such a surgical operation is trivial. No surgical operation in which there is a large loss of blood, in which bone is chipped off, in which the patient is already in a more or less debilitated condition from the effects of the original accident, can be regarded as trivial.

Dr. Walton has spoken of repair. He has not said what he means, and just what can be meant by repair of the spinal cord after these accidents I do not understand. I presume he does not mean the actual repair of the nerve substance, but what else is there to repair in such cases? He speaks also of the desirability of the removal of adhesions. It seems to me that the operation is likely to increase the possibility of adhesions, particularly if the dura be opened. I fail to see how

the operation in the majority of cases benefits the patient in any possible way in which he would not be benefited without it.

Dr. Putnam has mentioned cases in which very distinct improvement after apparent transverse lesion has followed without operation. I have more than one such case in mind in which marked restoration of function took place.

Neither can I see the desirability of an early operation. Just what is accomplished by operating on the cord immediately after the accident is not clear. What happens as a rule, and I shall show in a moment four specimens taken more or less at random, is a crushed cord with a good deal of central hemorrhage in the gray or white matter, very rarely extradural hemorrhage, very rarely intradural hemorrhage, but usually either complete crush of the cord or hemorrhage into the cord, conditions which are by no possibility reachable surgically; therefore the scientific position to take is that which Dr. Thomas has expressed, namely, to wait in order to make as careful an examination as possible. We cannot always make an absolutely perfect examination, as Dr. Munro says, but we can at least make the attempt. If we are to adopt the plan advocated by certain surgeons of operating on all cases as a routine matter, we are certainly not going to arrive at any very great knowledge of these cases.

DR. MUNRO: No one has advocated that.

DR. TAYLOR: May I read a recent statement of a distinguished surgeon of a neighboring city? "I believe the surgeon should perform laminectomy in every case, if the condition of the patient is such as to justify any operation, regarding the operation in the first instance as an exploratory one." That attitude seems to me to be neither progressive, scientific nor desirable in this class of cases.

I wish now to show several specimens illustrating lesions of bone and cord; this specimen was from a young boy who was thrown over backwards and fractured the lower cervical vertebræ. The laminae were broken but did not impinge to any extent on the cord, but the interesting point from the pathological point of view is the fact that the bodies are injured, as is usually the case.

This second specimen shows beautifully a hemorrhage in the centre of the cord, without marked injury to its external surface.

These are illustrative cases of what usually happens; what is very noticeable is the fact that there is no hemorrhage extradural or intradural where the surgeon can reach it. I should like to ask how often they find any clot which is removable, and how often they find anything except the fractured bone which justifies the operation?

Here is the trapeze case of which Dr. Mixer and Dr. Richardson have spoken, showing a crush of the cord. Operation was done, but the cord was completely disintegrated with no hemorrhage extradural.

Another case shows complete crush of the cord. Again the cord appeared perfectly normal to the

operating surgeon. In both cases death followed very shortly after the operation.

I pass about pictures from Dr. Thomas' paper, which may add somewhat, as also the specimens, to the interest of the discussion.

DR. COURTNEY: I agree *in toto* with the remarks of Dr. Thomas and Dr. Taylor. Furthermore, I am convinced that it is erroneous to hold that this operation is in itself devoid of danger, particularly in the case of cervical fractures. In such, to begin with, the patient is limited to diaphragmatic breathing, and this restricted respiratory power is at once further encroached upon when he is turned over on his abdomen and etherized. The situation is, therefore, a serious one before the operation is even begun, and I can hardly believe that the latter can fairly be said to be devoid of danger under this combination of circumstances. To the remarks of some of the speakers who have said that the stand taken by the detractors from the operation is a purely theoretical one, I can only reply that all available statistical evidence demonstrates that the main yield thus far from the operation under consideration is a highly valuable collection of pathologic specimens. The "facts" which Dr. Taylor has passed about in the dish are fairly tangible, to say the least, and in the face of such mute but eloquent testimony, the term "theoretical" seems to me somewhat out of place.

DR. MUNRO: Has Dr. Courtney seen any ill results after this operation?

DR. COURTNEY: Inasmuch as two cases at least have died on the table at the hospital, it would seem that death was materially hastened by the operation.

DR. MUNRO: I think a surgeon is a little more capable of judging of the severity of an operation than a neurologist. I think you are mistaken.

DR. KNAPP: Like Dr. Bullard and Dr. Prince I have also gone over some of the City Hospital statistics, looking up rather hastily all the cases of fracture that have been indexed: 155 were not operated upon, of these 105 died and 40 were discharged relieved; 21 were operated on, of these 15 died and 4 were discharged relieved. In the nonoperated cases there were 67% of deaths; in the operated cases 71% of deaths; 26% of the cases were relieved in the nonoperated cases, 19% in the operated.

In my own personal experience I recall several cases of fractured spine, not operated upon, who later came to out-patient clinics and were able to go about on crutches or otherwise, yet definite symptoms were present pointing to an affection of the spinal cord. I have not yet seen any of the operated cases of fractured spine going about with persistent symptoms, although I have known of several that have been investigated pathologically.

Dr. Munro talks a great deal about there being no danger in the operation. The operation itself is apparently a mere bagatelle. [Dr. Munro: Slight danger.] I recall a man, apparently in good condition except for a very obstinate am-

putation neuralgia, upon whom Dr. Burrell did laminectomy, and he died upon the table or a few hours after the operation. I do not know what he died of, because the danger from the laminectomy was so slight that he could not have died from that. I have had the feeling that in other cases we might say of laminectomy, as H. C. Wood said of trephining for brain tumor: "It affords a speedy autopsy in cases that might otherwise have escaped from observation."

There are several points of some importance, it seems to me, in the way of diagnosis. In the first place, can we make the diagnosis of a complete crush of the cord? I would agree with Dr. Walton and the others who have spoken that we cannot be absolutely sure in our diagnosis of complete crush of the cord, nevertheless, if we have the whole train of symptoms which Kocher has laid down, the probabilities of a complete crush are very great, and, it seems to me, where those symptoms occur it is well to be upon our guard against advising in favor of any indiscriminate laminectomy.

There is another class of cases which Dr. Walton has not spoken of—the cases where we are quite sure that there is not a complete crush of the cord, but where there is partial preservation of function in parts below the injury. I can recall one case which Dr. Thomas has reported in his series. I believe Dr. Courtney looked at me with considerable surprise and curiosity when I advised an operation. It was a case of fracture of the vertebræ following a fall. The man had a decided paresis of the lower limbs, but motion was still preserved. He could lift both legs a little. Sensation was also preserved. He could still feel a moderate touch below the seat of the injury. The functions of the bladder were also preserved in part. The reflexes were retained. I was led to suggest a laminectomy. Dr. Monks operated. We found what is rather an unusual condition, an extradural hemorrhage which was removed; the dura was then opened, and if I remember correctly we did not find anything more until the next day at the autopsy. Then we found, in addition, a transverse softening of the cord just above the level of the hemorrhage and involving the cord really pretty completely, although microscopically there were a few fibres retained.

There are certain symptoms in these cases where we are certain there is not a complete crush, yet when we are reasonably certain that the cord has been so far damaged that operation is inadvisable. One is the presence of the Brown-Sequard symptom-complex. Another, in the majority of cases, in spite of Dr. Thomas' case which he reported to the American Neurological Association last summer, is the presence of loss of pain and temperature sense with retention of tactile sensibility. In one of Dr. Munro's cases, which did not come to autopsy, although the operation did no good—he operated against my advice—there was a definite paraplegia, the tactile sensibility was retained, but the sensibility to pain and temperature was completely lost up

to about the level of the breasts. It was a case of fracture and the operation did absolutely no good.

Dr. Taylor is perfectly right in asking what are the surgeons going to do by laminectomy. The answer, of course, is that they relieve pressure. What is the pressure? Pressure may come from meningeal hemorrhage. That, in all the recorded cases at the City Hospital and in the experience of pretty much all observers, is a condition so exceedingly rare that it may practically be thrown out of the question, and it is doubtful whether a meningeal hemorrhage, especially if extradural, is likely to exert sufficient pressure upon the cord to be of any particular consequence, there being so much opportunity for the hemorrhage to extend up and down without producing direct pressure. With a fracture of the vertebræ the bones may press upon the spinal cord. They do at times. It is theoretically possible that that pressure may be so gently exerted as to come gradually down upon the cord, and thus shut off the functions of the cord below the level of the pressure. That is theoretically possible, but it is a considerable stretch of the imagination to suppose that that occurs in the ordinary case of fracture of the spine. We know by experience that there are a very considerable number of cases of injury of the cord, of crush, of softening, or laceration of the cord—where there is no fracture of the vertebræ at all—where twisting or bending of the spine causes softening of the cord; and, furthermore, in the vast majority of cases of fracture the process is something like this: the broken vertebra slides over the other, the cord receives irremediable damage at once, and then the vertebra may slide back or may remain exerting pressure upon the cord, yet whether that pressure be removed or not, its removal is not of the slightest consequence; the cord has received its damage, and whether you take off the pressure after the damage has been done makes no difference whatever.

I would agree with Dr. Taylor that to suture the spinal cord which has been completely divided, and to expect restoration of function, is a triumph of hope too great for my powers. I saw in the papers this summer the death of a negro operated on by Dr. Elliot in the spring of 1890; the broken laminæ were removed and the cord was found completely divided. I saw the boy about a year after the operation. He was then kept on a sort of frame-work, with complete paralysis and anesthesia, and the scars of very extensive bed sores. It was not possible to test the knee jerks with great accuracy, but the plantar reflexes were present. Dr. Elliot did not suture the cord in this case, otherwise we might have had some marvelous results, equal to those reported from Philadelphia or Chicago.

DR. WALTON: In answer to Dr. Taylor's question regarding relief of pain, the pain is due probably to the pressure of fragments upon the nerve roots, and the removal of such pressure is effective. Speedy relief of pain and hyperesthesia sometimes follow operation, though they

have persisted unchanged up to the time of operation. This relief alone justifies operation. The operation is certainly not trivial, but its dangers are comparatively insignificant, considering the gravity of the injury under discussion.

In no case has difficulty in etherization come under my notice. Far from its producing adhesions, operation relieves conditions which tend to produce adhesions.

The chief argument for operating early lies in the rapid degeneration of the cord—degeneration which has been demonstrated within four days of the injury. The figures gathered by Dr. Knapp and other observers are sufficiently baffling to show that we have not yet data to decide the question by statistics.

It is perhaps more accurate to speak of the cord as resuming its function than to speak of it as being repaired. I agree with Dr. Knapp that there are symptoms which render crush of the cord probable, but if we cannot decide this point with certainty, it seems to me that in the absence of definite contra-indications the patient should have the benefit of the operation.

#### NEW YORK NEUROLOGICAL SOCIETY.

STATED meeting Oct. 1, 1901, JOSEPH COLLINS, M.D., president.

CONTRIBUTION TO THE STUDY OF SPINAL FRACTURE, WITH SPECIAL REFERENCE TO THE QUESTION OF OPERATIVE INTERFERENCE.<sup>1</sup>

DR. GEORGE L. WALTON of Boston presented a paper on this subject.

DR. CHARLES L. DANA said that his own experience had led him to believe that the operation is practically safe, and that the spinal column itself is not injured by the operation. He had not had any fatal results in his operative cases, about half a dozen in all, and two of them were cases of injury in the cervical region. It was a matter of astonishment to him that such long and severe operations could be done upon these patients without sacrifice of life. He must confess, however, that the ultimate results of these operations had not been satisfactory according to his observation. He had seen some improvement in motion and in the bladder symptoms in these cases, but that had been about all, and it was quite possible that such improvement would have occurred without operation. If by clinical observation one could be sure that the cord was crushed one should not recommend operation. This could often be done. If there was a line of anesthesia coinciding with the line of paralysis, and this coexisted with the absence of knee jerks, he would feel almost positive that the spinal cord had been cut across, although there were certain exceptional cases affecting the cervical region which did not seem to follow this rule. It seemed to him that the operation performed by Lloyd, and which the speaker had seen employed

<sup>1</sup> See page 247 of the Journal.

by Abbé, was the quickest, safest and most effective. The author had done a service in bringing up this subject and urging a more persistent effort to relieve this distressing class of cases. The general opinion among surgeons was that this was a class of cases which holds out but little hope of benefit from operation.

DR. EDWARD D. FISHER said that he had had a number of cases of fracture of the spine under his observation, and in the main he would agree with the reader of the paper, that an operation is advisable. He would do this because death rarely occurs as the direct result of the operation. Where there had been a fatal termination he felt that the same result would have occurred if there had been no operation. In two cases that had been under his observation in which cocaine had been used the operation had been done as well as under general anesthesia. In one of the cases the injury had followed a dive in shallow water, and in the other from an acrobat diving off the shoulders of another acrobat. The lesions had been about the same in each case, and because of the situation of the lesion they had been afraid to administer a general anesthetic. When the cord was touched there was a sensation of pain, but no localization, and the operation was conducted without any more shock than with general anesthesia. He agreed with the reader of the paper that it was almost impossible to make an accurate diagnosis between cases in which the cord had been partially or completely crushed. He did not believe that a lesion through the cervical region, with an absolute loss of reflexes, positively indicated that there had been a complete destruction of that region. Sometimes on cutting down and exposing the cord one observed very little change in the appearance of the cord until the dura had been cut. Even then there might be very little change because of a hemorrhage in the substance of the cord. The distribution of the sensation in almost all of these cases was irregular, so that the classical picture was rarely observed. In many cases where there had been absolute loss of reflexes there had been partial recovery—indeed, in his experience it had been the rule to see only partial recovery.

DR. GRAEME M. HAMMOND did not think it was always possible for the neurologist to say that the symptoms presented were positively indicative of complete destruction of the cord. In one case coming under his observation, in which a young man had fractured his fourth cervical vertebra by diving in shallow water, there had been evidence of complete injury to the cord. He had been operated upon a year or two afterward, but it was needless to say there had been no resultant improvement. In another case in which there had been an incomplete injury to the cord, and in which operation had been resorted to shortly afterward, there had been complete recovery and the man had returned to his occupation of wrestler. Within a few days he had seen a very interesting case. It had been first reported four years ago. Several bales had struck him on the

back, and almost immediately he had presented the symptoms of tabes, pure and simple. He had had no reflexes and almost complete anesthesia, with the Romberg symptom. He had been operated upon twelve weeks after the injury, and had made a complete recovery, with a return of reflexes. He had seen this man within a few days, now twelve years after the injury, and he had then presented absolutely no symptoms of injury to the cord. Such cases naturally led one to be rather optimistic in regard to the mild cases. The fact that there was spinal deformity meant nothing, for in Pott's disease of the spine there was often very marked deformity without any spinal cord symptoms. If the symptoms presented in a given case pointed to the total transverse lesion of the cord, there was nothing to be done but operate, and even this gave a forlorn prognosis. In the milder cases the operation should be undertaken as soon as possible, as here the prognosis was much better. He would operate in any case, no matter how hopeless it seemed, because nothing else could be done, and the patient was no worse off than before. In the milder cases it was our duty to operate.

DR. B. SACHS said that the question arising regarding operative interference in these cases was similar to the question of surgical interference in Pott's disease or in cases of tumor. The answer to this question must depend very largely upon the stage. He could not agree with Dr. Hammond, that operation should be done because, to say the least, the person would be no worse. It was still the fashion to delay surgical interference until everything else had been tried, whereas, if surgical interference was to do any good it should be practised at once. In cases of fracture of the spine, therefore, whether complete or incomplete, operative interference at the earliest stage could do no harm and might be productive of a great deal of good. The differential diagnosis between complete and incomplete crush was difficult. When the crush was complete the reflexes were almost invariably absent, whereas, if there was more or less maintenance of conduction through the cord, the reflexes were apt to be impaired or exaggerated, according to the site of the lesion. The dissociation of sensation was, in his opinion, an exceedingly valuable symptom, as it pointed out the rather moderate involvement of the cord. He was inclined to think that it was often a root symptom and not an indication of absolute involvement of the cord itself.

DR. J. ARTHUR BOOTH said that his experience had been limited, but he had not seen any great benefit from operation, although it should be said that operative interference had been resorted to at a late stage. It seemed rational to treat fractures of the vertebræ on the same general surgical principles as fractures in other parts of the body. In two of his cases the complete paraplegia existing prior to operation had remained unaffected, though there had been some diminution of anesthesia and improvement in the condition of the bladder.

DR. JOSEPH FRAENKEL referred to a case at the Montefiore Hospital of fracture of the spine. The patient had been admitted a year and a half after the accident, and had been walking around since the injury. Although the operation had been done late it was worthy of note that three years and a half after the injury the autopsy showed that the cord had not been entirely destroyed. About six years ago he had presented to this society a paper on the differential diagnosis between complete and partial destruction of the cord. In four cases in which the reflexes had been lost the autopsy had shown complete destruction in only one of the cases. That shock alone was sufficient to destroy the reflexes was an old physiological dogma. He wished to insist that it was important to note the condition of the deep and superficial reflexes, because for the maintenance of the deep reflexes it was necessary that the cord be intact, whereas this was not requisite for the superficial reflexes. The plantar reflex was the one that was not destroyed.

DR. GEORGE E. BREWER said that there was a greater inclination in Boston than in New York to operate upon these cases. He had personally passed through various stages of opinion regarding operating. At first he had been influenced by those around him in Boston. The general rule had been, when there was paralysis below the point of injury and involvement of the sphincters, to do an exploratory operation. He could not recall a single one of these cases that had been benefited by the operation, though he felt that they had all been examples of complete crush of the cord. In New York City the surgeons had been perhaps a little too conservative. Injury in these cases is either a crushing one, or there is a hemorrhage within or without the cord; hence the outlook for operation was not good. The cases of hematomyelia recover without operation; cases of severe crushing injury, even with operation, do not. This seemed to be the prevailing view here at the present time. Possibly some of the early successes were in cases of unrecognized hematomyelia in which, of course, recovery would have taken place entirely independently of the operation. Last winter he had seen a girl with injury of the last lumbar vertebra. There was a sensory paralysis and complete loss of control of the bladder and rectum. Dr. Hammond had examined the case, and believing that there was no transverse lesion, had urged operation. The speaker had performed laminectomy, and had found only a small spicule of the bone. The patient had recovered from the operation, and at the end of six weeks had regained control of the bladder and rectum. When seen two or three months after operation she had almost completely recovered. Had it not have been for the advice of Dr. Hammond he would have looked upon this case as an improper one for operation. It had been his practice to introduce in these cases a very small rubber drain.

DR. A. C. BRUSH of Brooklyn said that he had seen a number of these cases. In the past six

months he had had several x-ray photographs made, and they had been so variously interpreted by those who had seen them that they had ceased to have any value. A case was mentioned in which great improvement had followed the removal of a spicule of bone in a man brought into the King's County Hospital after a fall. A diagnosis had been made of fracture of the arch. An immediate operation had been done, and the arch found to be broken down, but this was not pressing upon the cord, but a fragment of the tenth dorsal vertebra. This case had impressed him with the value of operative interference as a means of diagnosis.

DR. JOSEPH COLLINS said that he had only seen a few cases of fracture of the spine, and these at a remote date from the injury. The future of spinal surgery for broken back, he affirmed, lay entirely in the hands of the neurologists—in other words, upon the diagnosis. This had been clearly brought out in the cases cited by some of the speakers this evening.

DR. WALTON, in closing, said that the statement made by Dr. Dana regarding the symptomatology of complete crush of the cord seemed to impeach the observations of a number of trustworthy observers. Regarding late operations he would say that if the pressure had been removed there was no use in operating, and if the pressure had existed for many months there was little prospect of doing any good by operating. Theoretically the late operation would be useful in cases in which symptoms arose from the formation of callus on the inside of the laminae and their pressure on the cord, but his personal experience did not include any case of this kind. Instead of picking out an occasional case for operation, he would advise picking out an occasional case in which an operation should not be done—in other words, a case which was in great shock and practically moribund.

### Recent Literature.

*American Edition of Nothnagel's Encyclopedia.* Typhoid and Typhus Fevers. By DR. H. CURSCHMANN, Professor of Medicine, Leipzig. Edited, with additions, by WILLIAM OSLER, M.D., Professor of the Principles and Practice of Medicine, Johns Hopkins University. Authorized translation from the German, under the Editorial Supervision of ALFRED STENGEL, M.D., Professor of Clinical Medicine, University of Pennsylvania. Octavo of 646 pages, illustrated, including a number of temperature charts and two full-page colored plates. Philadelphia and London: W. B. Saunders & Co. 1901.

To the practitioner, the investigator or the student seeking the most trustworthy knowledge and opinion of today in regard to the two important diseases of which this volume treats, it offers the same guarantee for confidence and desirability.

ity which a note endorsed and guaranteed by four of the foremost "captains of industry" would offer to the financial investor. We recommend the book with the same emphasis as such a note would be recommended; fortunately, the book is not so inaccessible as the note. It is, however, rare to have the guarantee for one book of four such names as those of Professors Nothnagel, Curschmann, Osler and Stengel. In addition, excellent work has been done upon many chapters by most competent subordinates thoroughly acquainted with the latest contributions to these subjects here at home as well as abroad.

Of course typhoid fever is, as it deserves to be, the dominant subject, occupying 472 of the 646 pages of the volume. With the great general hygienic advance of the last fifty years typhus fever has rapidly declined in relative importance to typhoid fever as a disease factor affecting the human race; moreover, there never has been a time when typhoid fever has been more carefully or more successfully studied — whether as to etiology, pathology, diagnosis, prophylaxis or treatment — than within the last fifteen or twenty years.

This first volume of the American Edition of Nothnagel's Encyclopedia has the merits of the original German, but has much not contained in the original and is in every respect thoroughly up to date. We again heartily recommend it.

*The Pocket Gray or Anatomist's Vade-Mecum.*

By the late EDWARD COTTERELL, F.R.C.S. Fifth edition, revised and edited by C. H. FAGGE, M.B., M.S. (Lond), F.R.C.S., Senior Demonstrator of Anatomy, Guy's Hospital. Twentieth thousand. New York: William Wood & Co. 1901.

Into this small book of 269 pages, including a full index, is compressed a large number of the facts of descriptive human anatomy. Its title describes its function, and that it fulfils this function is shown by the fact that this edition represents the twentieth thousand. It is a book deserving of no special praise or criticism. It is certainly useful as a ready means of reference, and for this purpose it was, no doubt, compiled. The bones are not alluded to in the text, an omission which might be made good by a very few added pages. The publishers have done their work sufficiently well; the type is clear, though, of necessity, small.

*Rough Notes on Remedies.* By WM. MURRAY, M.D., F.R.C.P. (Lond.). Fourth edition. London: H. K. Lewis; Philadelphia: P. Blakiston's Son & Co. 1901.

This is a small book of 176 pages. It contains notes on the uses of five of the common drugs in special diseases. It is interesting, but unscientific, and did not the writer qualify his earlier statements in later chapters, would call for sharp criticism. There are other chapters on Our Mistakes, Specific Disease and Rothbury as a Health Resort. The work presents little that is of real value.

## THE BOSTON Medical and Surgical Journal.

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### ANATOMICAL VERSUS PATHOLOGICAL RESEARCH.

It is always a matter of regret when, through the expansion of medical knowledge, misunderstandings arise within the professional ranks. Inasmuch as the profession at large has so many duties to perform in defending the community and itself from the encroachments of the ignorant, the uninformed and the malicious, it is the more to be deplored that internal disagreement should ever be added to its responsibilities. When such a situation presents itself, the attitude of those concerned must be reasonable, conciliatory and dignified, if the best traditions of the profession are to be preserved. There must be a clear recognition of the fact that in such matters a compromise should be reached by a perfectly clear and just presentation of all the elements entering into the question at issue.

It is our purpose in what follows to bring before our readers a matter which for several years has been exciting an increasing discussion among certain members of the profession, and which has finally attained an importance demanding wider recognition. We refer to the conflict of opinion growing out of the use of bodies for anatomical purposes on the one hand, and for pathological purposes and research into the nature and manifestations of disease on the other. It is claimed by those whose interests lie chiefly in the line of anatomical study and teaching that their work is being seriously interfered with by the increasing practice of performing autopsies on bodies before they are delivered for anatomical dissection. It is claimed by the pathologists and the great mass of clinicians that post-mortem examinations are not only essential as a routine practice in a well-organized hospital, but that, were such examinations checked by arbitrary authority, medical practice, medical teaching and research into the



nature of disease would be directly threatened. This is a bald statement of the present situation; it has been brought definitely before the public in this State by a petition recently presented to a legislative committee by Dr. A. H. Harrington of the Danvers Insane Hospital, praying for legal right to perform autopsies before relinquishing bodies for purposes of anatomical dissection. This is but one of many less clearly expressed protests. In many hospitals throughout the State physicians are claiming the right to study their cases, not only during life, but also to arrive at what further knowledge an autopsy may reveal. Shall this latter natural desire be suppressed by law is the question before the medical profession, and it is a question in which the profession has a very vital interest. It is to be understood that in the consideration of this whole matter one should never lose sight of the ultimate aim toward which our efforts, whether as anatomists or clinicians, are directed, and that is, the final best welfare of mankind at large. Any personal considerations must be subordinated to this end. Our purpose in what has gone before and in what we are about to say is to impress this fact, to the exclusion of any minor considerations.

The tendencies of the past few years which have led up to this state of affairs are easy to trace. Anatomical research has had its day of trial, as everyone at all familiar with the history of medicine knows, and has come out triumphant by gradually overcoming the instinctive popular prejudice against the dissection of the human body. This has rendered possible systematic anatomical teaching, and has laid the foundation for a graded medical curriculum. It has, therefore, been of inestimable value in the upbuilding of medical education. Other interests have, however, come into prominence within relatively few years, notable among which is the determination to study disease not only in its clinical manifestations, but also from the broader point of view of its anatomical basis and more subtle causative factors. This is pathology in its wide sense, to the development of which has been given the best energies of the ablest men in the profession for many years. The general result we know; practical medicine is emerging from its empiricism into a condition of relative scientific certitude. It is not for a moment to be supposed that this beneficent tendency can be checked either by restrictive legislation or public opinion. Laws operative against popular prejudice lose their force when directed against progress in other directions.

It is well, therefore, to state in as judicial a spirit as possible the arguments which the two points of view present. First, on the anatomical

side: It is claimed, with much reason, that a body from which the viscera have been removed is less valuable for anatomical purposes than one upon which no such operation has been done. It is also urged that the difficulty of properly preserving a body in which the great vessels have been severed is increased. Further, the growing importance of visceral anatomy is insisted upon in undergraduate instruction. All of these points are well taken and should be given due weight. It must forthwith be admitted that eviscerated bodies are of less value than intact ones for purposes of dissection; it should, however, not be forgotten that they are still of very great value for the major part of the work a student is called upon to do. The preservation, also, of eviscerated bodies is no doubt more difficult, but by no means impossible. The viscera are notoriously in a highly unnatural state in a body long dead, and certainly do not give the student a luminous idea of the conditions existing during life. The central nervous system is worthless, and the other organs are of doubtful value. The topographical anatomy of the viscera may certainly be well studied at the autopsy table, before secondary changes of moment have set in. Dissections of the lower animals are also instructive in this connection, reinforced by the use of models and diagrams. This applies far more to normal than to morbid anatomy. We are convinced, therefore, that the student's knowledge would not seriously suffer, whose work is largely limited to the dissection of eviscerated human bodies. We are quite ready to admit, on the other hand, that the anatomist's demand for unautopsied bodies is a natural one, and one that should be met, within limits, by his colleagues, upon whom he is dependent for his material.

When we turn to the other aspect of the question, as represented by pathologists and clinicians, we find that they also have rights which demand immediate recognition. First: Physicians connected with public and private institutions are becoming students of medical problems and not mere custodians of the sick; asylums are everywhere giving place to hospitals, and with the growth of the hospital idea the thorough study of disease goes hand in hand. The State is paying salaries to skilled men who are devoting themselves to pathological study, and these men as well as the clinicians are claiming a right which every enlightened physician or layman must respect, when they ask the privilege of studying, and studying completely their cases. This interest which has been slowly evolved, is the crowning consummation of modern methods of medical thought and teaching. It is an enthusiasm which should not, and we believe cannot, now be sup-



pressed. If it runs counter to other claims, those claims must be considered from the point of view of the future and not of the past.

Secondly: Apart from the broad claims of the hospitals as such, autopsies must be performed on all cases of scientific interest for the benefit of pathological teaching and research, and so indirectly for the benefit of the community at large. The student, also, be he undergraduate or physician, must have an opportunity to see such examinations. What cases are to be included in this category can only be determined by those who have made a study of them during life, certainly not by legal enactment. The law, as at present constructed, reads that certain bodies must be delivered to medical schools for anatomical study, with the assumption that autopsies shall not have been performed. If the strict interpretation of this law be adhered to, with the consequent denial of the right of choice in individual cases, the situation becomes intolerable, and strikes at the very root of medical progress.

Thirdly: A body upon which an autopsy has been performed is still of positive value for purposes of dissection; a body unautopsied is naturally wholly lost to the student of morbid anatomy, and is a serious loss to the clinician. If the greatest good of the greatest number is a principle of value, it surely has its application here.

How are these rival claims to be satisfied? It is a matter which ultimately concerns the whole profession and which the whole profession may be called upon to decide. Legislation or compromise appear to be the alternatives. If legislation be sought, if an attempt to enforce existing laws be made, opposition is inevitable, and with that opposition will come an altogether undesirable notoriety. Furthermore, if such an attempt be made, there must be no discrimination. The active municipal hospital must be treated in precisely the same way as the outlying almshouse or hospital for the insane. If the law have any application, its application is universal and not local; it is the natural duty of the favored physicians of the large cities to protect the interests of their colleagues in other fields of work. We are stating a simple fact when we say that the popular conscience is being aroused to the injustice of a mandatory law so interpreted as to prevent autopsies in certain cases. Which way the pendulum of opinion will swing if the matter be given a wide and fair hearing is sufficiently evident. It is perfectly clear that a great body of intelligent physicians, when it knows the full implication of the existing law, cannot be forced into a position which it feels contrary to the best interests of medical progress. A friendly compromise is the natural outcome. This we look

forward to with confidence; anatomical research and pathological investigation need not conflict, but it must be understood that the decision as to the use to which dead bodies are to be put must come from those who have knowledge of the diseases from which they suffered during life, and not from arbitrary legislative authority. Any other solution is neither to be expected nor desired.

#### THE SURGICAL TREATMENT OF AFFECTIONS OF THE PANCREAS.

RECENT events have excited so much renewal of interest in diseases of the pancreas that the symposium of the New York State Medical Association on this subject has more than a local interest.

Whatever may be the eventual outcome, there is but little question, at present, that surgery alone can be expected to afford relief to the more severe affections. The contribution of Dr. Roswell Park,<sup>1</sup> therefore, is especially timely and deserves a wide distribution. The methods of operating are stated by him with sufficient clearness and thoroughness, although the conditions to be operated upon evidently are debatable. The value of the dictum "when in doubt, operate" depends altogether upon the doubter, and it can easily be admitted that so experienced a surgeon as Dr. Park would be justified in undertaking an operation which should be regarded as unwarranted if performed by a tyro.

The importance of a thorough exploration of the region of the pancreas in severe injuries of the upper abdomen, especially from penetrating wounds, is sufficiently obvious and is not likely to be neglected. The negative results of exploration are not to be too confidently depended upon, since the situation of the organ and its relation to surrounding parts are such that slight injuries may be overlooked or disregarded.

Experience, however, shows that apparently slight injuries to the pancreas may be followed by the most disastrous consequences. Temporary drainage does not add materially to the risks and may be the means of securing the best possible effect from surgical treatment.

When acute pancreatitis or omental bursitis results from injury or from other causes, there can be no question of the propriety of surgical treatment. Although recovery from acute pancreatitis may take place without operation, the course in such cases is relatively mild, and there are usually no urgent symptoms seeming to demand surgical interference. The grave manifestations call for treatment by the surgeon whatever may be known or unknown as to their causation.

<sup>1</sup> American Medicine, 1902, III, 260.

No more striking illustration of the truth of the latter statement can be offered than the noteworthy communication of Dr. J. W. Mayo,<sup>2</sup> which shows that success may follow the surgical treatment of necrotic pancreatitis and disseminated fat necrosis—critical as was the condition at the time of the operation.

We can but express our satisfaction with Dr. Park's article as a whole, and have no doubt it will warmly be welcomed by the surgeon and lead to more active interference in possible or probable disease of the pancreas than has hitherto been undertaken. Not the least benefit to be derived from the repetition of such operations will be the acquisition of greater accuracy in diagnosis and prognosis, which, when attained, will permit the elimination of the unnecessary from the necessary efforts by removing the doubt from the mind of the operator.

#### FRACTURES OF THE SPINE.

IN another part of this issue we publish at considerable length a discussion recently held in Boston and another in New York regarding the advisability of operation in cases of fracture of the spine. One point, at least, this discussion brings out, and that is that a decided difference of opinion exists as to the indications and results of operative measures. In general it may be said that the surgeons are arrayed on one side and the physicians on the other, as too often happens in these days of somewhat strenuous surgery, and possibly hyperconservative medicine. Were the difference of opinion sharply confined to these two classes of practitioners, a judicial mind might fairly form a sufficiently accurate rule of conduct, but, unfortunately for any such easy solution, the instigator of these discussions is a physician who does not agree with his brother physicians, but joins hands with his surgical friends. We are, therefore, plunged into a new maze of difficulties, from which escape through argument seems well-nigh impossible. It is evident that cases must be studied more carefully and in greater number, both before and after operation, or before and after death, if such be the outcome, if anything beyond the expression of personal points of view is to be attained. In the meantime we should welcome discussion which may in any way stimulate a wider interest and a wider knowledge of this increasingly important subject. We need to know more accurately what is likely to happen to the cord, under varying conditions of trauma, and as far as possible what does actually happen. Post-mortem study should be our resource.

<sup>2</sup> *Journal American Medical Association*, January 11, 1902.

#### MEDICAL NOTES.

**AN AMERICAN HOSPITAL IN PARIS.**—Mr. Edward Tuck, of New York, who spends a considerable portion of his time in Paris, is to defray the entire expense of erecting and equipping a free American hospital in the latter city, and, in addition, will donate a sufficient fund for its maintenance. Ground has already been purchased for it in the Passy Quarter, and it is to be called the Franklin Hospital. Dr. Magnin will be the medical director of the institution, and all the physicians and nurses connected with it will be Americans. Plans are being drawn by a Boston architect.

**RESIGNATION OF DR. S. WEIR MITCHELL FROM PHILADELPHIA ORTHOPEDIC HOSPITAL.**—It is reported that Dr. S. Weir Mitchell, who has been for thirty years associated with the Philadelphia Orthopedic Hospital and Infirmary for Nervous Diseases, has resigned. His son, Dr. John K. Mitchell, was elected to the vacancy on the staff of physicians.

**PROFESSOR ERNST VON BERGMANN A PRIVY COUNCILLOR.**—It is reported that the Emperor of Germany has conferred the title of "Privy Councillor" on Professor von Bergmann, an honor said to have been previously granted to but two physicians.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Mar. 5, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 47, scarlatina 24, measles 272, typhoid fever 4, smallpox 27.

**ANNUAL REPORT OF THE BUTLER HOSPITAL, PROVIDENCE.**—According to the annual report of the Butler Hospital at Providence, R. I., there were in the hospital Jan. 1, 171 patients—90 women, and 81 men. There have been admitted during the year 38 women and 31 men. The whole number of patients under treatment during the year was, therefore, 240. The maximum number under treatment at any one time was 178; the minimum number was 166, and the average number for the year was nearly 173. Dr. G. Alden Blumer, the superintendent of the hospital, sounds a warning note regarding overeating as well as overdrinking in the causation of mental disorders late in life. He insists upon the increasing importance of arteriosclerotic conditions.

**DEFEAT OF ANTI-VACCINATION BILLS.**—All the anti-vaccination bills recently before committee of the legislature have been reported adversely. The Committee on Public Health has reported to the House the so-called Durgin vaccination bill, providing that "any child who pre-

sents a certificate, signed by a registered physician designated by the parent or guardian, that the physician has, at the time of giving the certificate, personally examined the child, and that he is of the opinion that the physical condition of the child is such that its health will be endangered by vaccination, shall not, while such condition continues, be subject" to the penalties for refusing to be vaccinated.

**THE NEW YORK HARVARD MEDICAL SOCIETY.**—At the annual meeting of the society, the following officers were elected: President, Wm. B. Coley, M.D.; Vice-President, Myron P. Denton, M.D.; Secretary, J. Hilton Waterman, M.D.; Treasurer, Joseph A. Kenefick, M.D.

**A CENTENARIAN.**—Mrs. Mary Martin, reported to be 101 years old, died at Marlboro, Mass., on Feb. 15.

#### NEW YORK.

**INCORPORATION OF HOSPITAL OF RED CROSS SOCIETY.**—At a meeting held Feb. 28 of the State Board of Charities, whose permission is required by law for the incorporation of all charitable institutions, approval was granted of the proposed incorporation of a hospital under the auspices of the Red Cross Society, which has for some time past conducted a dispensary on the upper West Side, in New York City. The president of the society, who, it is expected, will be the principal contributor to the new institution, is a strong prohibitionist, and the articles of incorporation as submitted contain a paragraph forbidding the use of alcohol in any form within its walls. It was stated, however, that at the suggestion of members of the board this restriction would be modified so that those in charge of the hospital will not be absolutely required to exclude alcohol, although having the option to do so. Permission to incorporate was also given by the Board to the Emergency Hospital of Buffalo, and the Associated Charities of Syracuse.

**INSTRUCTION IN FIRST AID TO THE INJURED.**—At the annual meeting of the Society for Instruction in First Aid to the Injured, held on Feb. 27, the report of the president showed that during the year instruction had been given to forty-five classes, in which there were 650 men and 256 women and girls. There were ten classes among policemen, with an attendance of 403, and three among firemen, with an attendance of fifty-nine. Instruction was given in ten public schools, and out of 313 pupils who took the examination, 301 passed successfully. There were but seven pay classes, which were instructed at the society's offices. Dr. E. L. Partridge was re-elected medical director, and among the members of the Board of Managers elected were Drs. J. H. Emerson and Charles Hitchcock.

**MONEY FOR VARIOUS HOSPITALS.**—On Feb. 23, \$10,000, the proceeds of the German Charity Ball given in January at the Waldorf-Astoria, was distributed among various hospitals, dispensaries and other charitable institutions. Among the recipients were the German Hospital, \$1,700; St. Francis Hospital, St. Mark's Hospital, and the German "Poliklinik," each \$1,050, and the West Side Dispensary, \$900.

**PROSECUTION OF DRUGGISTS.**—It is announced from Albany that the excise commissioner is to bring both civil and criminal prosecutions against druggists in the State who have been found by the inspectors of the Excise Department to sell liquor for drinking purposes under a pharmacist's license. Evidence, it is stated, has been collected by the department, against more than two hundred druggists who have violated the law.

**A LARGE VERDICT.**—On Feb. 26 a jury in the New York Supreme Court returned a verdict for \$30,000 damages against the Metropolitan Street Railway Company, in a suit brought by Jacob Reich for his eight-year-old stepson, who in September last lost both legs as the result of being run over by one of the company's trolley cars.

**BATHHOUSES PROHIBITED NEAR SEWERS.**—A bill has been passed by the State Legislature prohibiting the establishment of bathhouses in the vicinity of sewers in Kings County (the Borough of Brooklyn).

**MR. MORGAN'S GIFT TO HARTFORD HOSPITAL.**—Mr. J. Pierpont Morgan has given \$25,000 to complete the payment of a debt of \$74,800 on the Hartford Hospital, at Hartford, Conn., his native city.

**A CENTENARIAN.**—Mrs. Jane Maxwell, who was born in the north of Ireland, and who came to America in 1862, died in Yonkers, N. Y., on Feb. 25 at the age of 102 years.

#### ARMY NOTES.

**PLAGUE IN MANILA.**—The Board of Health of Manila is making every effort to eradicate plague from that city, and has expended a large sum of money to this end. Over 3,000 houses have been cleaned up, in which cases of plague have occurred or rats affected with the disease have been found, and their cleaning has been so thorough that in many instances the Board of Health has required their remodeling at a cost as high as two or three thousand dollars. Previous to this crusade against unsanitary houses, the Board of Health submitted a resolution to the Municipal Board, declaring that all houses in which cases of plague had occurred, or in which rats were found

affected with the disease, to be a nuisance and a menace to the public health, and obtained authority for the closure of such houses and their remodeling to the satisfaction of the sanitary authorities. So far, about 16,000 rats have been examined bacteriologically for plague, the result of which has shown that between 2 and 3% were so affected; but it is not believed that the 15,000 caught in traps represent more than a tenth of those destroyed by poison. Bounties are paid on the carcasses of rats destroyed, and prizes are also given to those presenting the greatest number of such carcasses during various periods. The use of rat poison has been encouraged in every way. Plague has been on the decline in Manila since August last, with the exception of a slight recrudescence of the disease during December, when the last case occurred. The bacteriological examination of rats at the laboratory also shows a decline in the proportion of those affected with the disease, which argues well for its control and early eradication.

**PREVENTION OF INFECTIOUS DISEASES IN THE ARMY.**—To prevent the introduction of infectious diseases into the army, it has been decided to disinfect, hereafter, the wearing apparel of recruits enlisted at all the larger recruiting stations immediately upon enlistment. This action is taken because of the constant outbreaks of measles and similar diseases at recruiting stations, in spite of every effort at prevention and control by the surgeons at these stations. The apparatus to be used consists of an airtight closet, provided with hooks and spreaders from which the articles of clothing may be suspended, together with an apparatus for the atomization of formaldehyde solution, similar to that used by the Chicago Board of Health, but so arranged that the spraying apparatus can be fastened directly to the standard bottles in which formaldehyde solution is supplied for army use.

**LEPER COLONY IN THE PHILIPPINES.**—The island of Kulion, distant from Manila about twenty hours' sail by steamer, was recently visited by the commissioner of Public Health and the sanitary engineer of the Philippines Commission, to perfect arrangements for the establishment of a leper colony thereon. The island is about twenty miles long, ten miles broad and contains many fertile valleys suitable for agricultural purposes. It is also well watered and timbered, and well adapted to stock raising. It is the intention of the commission that the colony, after its establishment, shall be self-supporting. It is expected that about six hundred lepers will be established on the island before the first of April, though the thorough carrying out of the plan as contemplated will require a number of years.

## Correspondence.

### POISONING BY FUR.

Boston, March 3, 1902.

MR. EDITOR: Permit me to call the attention of your readers to the occurrence this winter of cases of eczematous dermatitis of the neck and face produced by wearing fur tippets. The type of the efflorescence is papular, distinguished by the flatness and unusual size of the individual lesions, which are both discrete and grouped in confluent areas of moderate extent. The sides of the neck and cheeks are principally affected, and the eyelids have been especially inflamed in several instances. In one or two cases, deep, follicular inflammation has followed the first stage of the dermatitis.

The tippets in the cases observed by me, both in hospital and private patients, have been made of the cheaper furs, which are colored by some dark brown dye. In some instances, the fur, when wet, has stained the skin. The affection has yielded readily to the ordinary local remedies for eczema of similar type, but not until the tippet has been laid aside.

Very truly yours,  
JAMES C. WHITE, M.D.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, FEB. 22, 1902.

CITIES.	Population,* Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Diarrheal diseases.	
New York . .	3,665,352	1,500	537	24.51	19.40	3.60	.27	2.40	
Chicago . .	1,862,828	—	—	—	—	—	—	—	
Philadelphia .	1,349,624	568	155	20.24	20.06	1.83	2.24	.17	
St. Louis . .	608,717	—	—	—	—	—	—	—	
Baltimore . .	625,330	196	52	14.79	19.80	.51	1.53	.51	
Cleveland . .	411,826	—	—	—	—	—	—	—	
Buffalo . .	375,742	—	—	—	—	—	—	—	
Pittsburg . .	341,401	142	46	21.70	32.90	6.80	1.40	1.40	
Cincinnati . .	332,032	—	—	—	—	—	—	—	
Milwaukee . .	304,976	—	—	—	—	—	—	—	
Washington .	289,537	—	—	—	—	—	—	—	
Providence . .	185,870	65	8	26.18	26.18	1.54	1.54	3.06	
Boston . .	588,736	250	67	19.60	18.80	2.40	—	.40	
Worcester . .	127,337	44	12	15.90	27.60	2.27	—	2.27	
Fall River . .	111,472	—	—	—	—	—	—	—	
Lowell . .	99,674	27	11	22.21	14.81	11.10	—	—	
Cambridge . .	96,934	33	11	18.18	42.12	—	—	—	
Lynn . .	71,144	24	3	12.50	16.66	—	—	—	
Lawrence . .	67,275	27	12	14.80	14.80	3.70	—	—	
Springfield .	66,864	17	4	17.64	17.64	—	—	—	
Somerville . .	65,882	25	6	36.00	20.00	—	—	—	
New Bedford .	65,574	16	8	25.00	25.00	—	—	—	
Holyoke . .	48,065	10	5	40.00	20.00	—	—	—	
Brockton . .	43,298	7	1	28.60	—	—	—	—	
Haverhill . .	40,392	10	1	20.00	30.00	—	—	—	
Salem . .	36,667	15	2	—	13.33	—	—	—	
Newton . .	36,336	5	—	—	—	—	—	—	
Malden . .	35,390	9	3	11.11	11.11	—	—	—	
Chelsea . .	35,264	15	2	15.40	30.80	—	—	7.70	
Fitchburg . .	33,844	9	4	—	22.22	—	—	—	
Taunton . .	32,759	14	3	14.28	—	—	—	—	
Everett . .	27,114	8	8	—	—	—	—	—	
North Adams .	26,583	4	2	25.00	—	—	—	—	
Gloucester . .	26,121	—	—	—	—	—	—	—	
Quincy . .	25,307	8	3	12.50	12.50	—	—	12.50	
Waltham . .	24,612	8	—	—	33.33	—	—	—	
Pittsfield . .	22,311	3	—	—	33.33	—	—	—	
Brookline . .	21,679	—	—	—	—	—	—	—	
Chicopee . .	20,390	7	2	14.30	14.30	—	14.30	—	
Medford . .	20,014	3	1	—	—	—	—	—	
Newburyport .	14,474	12	1	8.33	25.00	—	—	—	
Melrose . .	13,384	6	—	—	—	—	—	—	

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1896. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,111; under five years of age, 970; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption; 673, acute lung diseases 634, consumption 350, scarlet fever 36, erysipelas 8, typhoid fever 38, whooping cough 21, cerebrospinal meningitis 8, smallpox 27, measles 48, diarrheal diseases 47.

From whooping cough, New York 16, Philadelphia 1, Baltimore 1, Boston 2, Lawrence 1. From cerebrospinal meningitis, New York 2, Baltimore 1, Boston 1, Worcester 1, New Bedford 1, Somerville 2. From scarlet fever, New York 25, Philadelphia 1, Baltimore 1, Pittsburg 4, Boston 2, Worcester 1, North Adams 1, Newburyport 1. From erysipelas, New York 7, Lynn 1. From smallpox, New York 13, Philadelphia 10, Boston 4.


Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.


In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending Feb. 8, the death-rate was 20.6. Deaths reported 5,875; acute diseases of the respiratory organs (London) 486, whooping cough 129, diphtheria 102, measles 127, smallpox 77, scarlet fever 60.

The death-rate ranged from 8.8 in Coventry to 28.8 in Merthyr Tydfil; London 22.5, West Ham 21.4, Croydon 18.1, Brighton 15.9, Portsmouth 19.5, Southampton 13.1, Bristol 22.6, Birmingham 23.7, Leicester 20.2, Nottingham 18.0, Birkenhead 15.3, Liverpool 25.5, Manchester 25.9, Salford 16.3, Bradford 17.6, Leeds 15.3, Sheffield 19.6, Hull 17.6, Newcastle-on-Tyne 18.6, Cardiff 17.3.

#### METEOROLOGICAL RECORD

For the week ending Feb. 22, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.				Relative humidity.		Direction of wind.		Velocity of wind.		We'thr		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.			
S...16	30.08	26	32	19	63	78	70	N	W	S	E	8	7	C.	O.	1.02
M...17	29.58	32	34	30	94	100	97	N	W	N	E	44	23	O.	N.	
T...18	29.07	28	33	22	88	81	84	N	W	N	W	10	20	O.	O.	.10
W...19	29.68	22	22	17	68	63	66	W	W	W	W	19	20	F.	C.	
T...20	30.16	30	42	19	58	58	58	W	W	N	W	15	12	C.	C.	.08
F...21	30.11	30	36	24	80	100	90	W	W	N	E	5	15	F.	N.	
S...22	29.82	28	32	25	100	88	94	N	E	N		20	12	N.	O.	.29
	29.79		34	22		80										1.49

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall.  Mean for week.

#### OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING FEB. 27, 1902.

WILLIAMS, L. L., surgeon. Granted leave of absence for one day. Feb. 26, 1902.

PERRY, T. B., surgeon. Granted leave of absence for seven days from Feb. 12, 1902, under paragraph 181 of the regulations.

THOMAS, A. R., passed assistant surgeon. Relieved from duty at Glasgow, Scotland, and directed to proceed to London, England, for duty in the office of the U. S. Consul General. Feb. 21, 1902.

ROEBIG, A. M., senior pharmacist. Granted leave of absence for six days from Feb. 5, 1902, under paragraph 201 of the regulations.

NEWBORN, WALTER, JR., senior pharmacist. Granted leave of absence for one day, Feb. 11, 1902, under paragraph 201 of the regulations.

STEDENBURG, FRANK, junior pharmacist. Granted leave of absence for three days from Feb. 19, 1902, under paragraph 201 of the regulations.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MARCH 1, 1902.

D. N. BERTOLETTE, medical inspector. Detached from the "Brooklyn" and ordered to the "New York."

C. T. HIBBETT, surgeon. Detached from the Cavite Naval Station and ordered to the "Brooklyn."

J. E. GARDNER, surgeon. Detached from the "New York" and ordered to the Naval Hospital, Cavite, P. I.

J. J. SNYDER, assistant surgeon. Ordered to Port Royal Naval Station for temporary duty with recruiting party.

B. L. WRIGHT, assistant surgeon. When discharged from treatment at Naval Hospital, New York, ordered home and granted sick leave for three months.

L. W. SPATLING, surgeon. Ordered to Buffalo, N. Y., for duty at the Naval and Marine Recruiting Rendezvous.

H. L. LAW, surgeon, retired. Detached from duty at the Naval and Marine Recruiting Rendezvous, Buffalo, N. Y., and ordered home.

W. H. ULSH, assistant surgeon. Reported at the Naval Hospital, Mare Island, Cal.

#### RECENT DEATH.

DR. JOSEPH A. BOOTH, the last surviving brother of the tragedian Edwin Booth, died in New York on Feb. 26, of cardiac disease. He was born in Baltimore, Md., and was 62 years of age. He studied medicine in New York, and practised in that city for a considerable time. Later he removed to Long Branch, N. J., where he remained until about a year ago, when he retired from practice and went back to New York to live.

#### BOOKS AND PAMPHLETS RECEIVED.

Arrow Wounds. By Thomas Wilson. Illustrated. Reprint. 1901.

Simulation of Insanity. By A. W. Holsholt, M.D., Stockton, Cal. Reprint. 1901.

Quackery. A Paper Read before the Society, March 6, 1901. By Dr. Harry Hakes, Wilkesbarre, Pa. Reprint. 1901.

The Therapeutics of Subacute and Chronic Heart Diseases. By Thomas E. Satterthwaite, M.D., of New York. Reprint. 1901.

Technique of Labor in Private Practice. By Stanley P. Warren, M.D., Obstetrician to the Maine General Hospital, Portland, Me. Reprint. 1902.

The Treatment of Chronic Nephritis by Mineral Drink-Waters and Mineral Baths. By Medicinal-Rat Prof. Dr. J. M. Groedel, in Bad-Nauheim. Reprint. 1901.

The Treatment of Consumption in Local Sanatoria. By Henry Barton Jacobs, M.D., Associate in Medicine, Johns Hopkins University, Baltimore. Reprint. 1901.

Early Diagnosis in Carcinoma. By Charles A. Powers, M.D., Denver, Col., Professor of Surgery in the University of Denver; Surgeon to St. Luke's Hospital, Denver, Col. Reprint. 1901.

Giant Sacrococcygeal Tumors. An Account of one which Pursued an Atrophic Course. By Charles A. Powers, M.D., of Denver, Colo., Professor of Surgery in the University of Denver. Illustrated. Reprint. 1901.

Colloid Cancer of the Stomach and Omentum: Diagnosis by Abdominal Paracentesis. By Stephen Smith Burt, A.M., M.D., Professor of Medicine and Physical Diagnosis, New York Post-Graduate Medical School; Attending Physician New York Post-Graduate Hospital. Illustrated. Reprint. 1901.

Tent Life and Simplicity in Therapeutics as Factors in the Treatment of Phthisis Pulmonalis. By Wm. K. Robinson, M.D., Denver, Colo., Laryngologist National Jewish Hospital for Consumptives, Denver, Colo.; Laryngologist Steele Memorial Hospital, etc., Denver, Colo. Reprint. 1901.

The Value of Age and Sex as Etiological Factors in the Differential Diagnosis of Gastric Ulcer and Carcinoma. By William Murrell, M.D., F.R.C.P., Physician to the Westminster Hospital; Lecturer on Clinical Medicine; Joint Lecturer on the Principles and Practice of Medicine and Examiner in the University of Glasgow. Reprint. 1901.

Some Cases of Cirrhosis of the Liver, with Ascites, Including one of Banti's Disease, Treated Surgically by the Establishment of a Collateral Circulation. By William Murrell, M.D., F.R.C.P., Physician to the Westminster Hospital; Joint Lecturer on Medicine and Lecturer on Clinical Medicine; Examiner in the University of Glasgow. Reprint. 1902.

## Original Articles.

## ALCOHOL IN THERAPEUTICS.

## THE VALUE OF ALCOHOL AS A THERAPEUTIC AGENT IN MEDICINE.\*

BY HENRY F. HEWES, M.D., BOSTON,

Physician to Out Patients, Massachusetts General Hospital.

THERE is no drug in the pharmacopeia in regard to the therapeutic use of which there is a greater variety and divergence of opinion and practice among the medical profession generally than alcohol. To exemplify this diversity let me cite the opinion existing at the present time in regard to the action of the drug upon the heart and nervous system. In many of the leading textbooks upon therapeutics (Hare, White, Wood<sup>4</sup>) we find alcohol spoken of as a nerve and heart stimulant and advised for use in conditions of heart weakness, and it is the custom of a large number of practicing physicians to regard the drug in this light and to use it for purposes of stimulation, more or less continuously, during the course of acute diseases in which signs of heart weakness occur. Other physicians, among them the pharmacologists who base their opinions upon the results of pharmacological research with the drug, are of the opinion that the action of alcohol upon the nervous system and heart, taken in its total effect, is always depressant in kind, and that its use for purposes of heart stimulation is, therefore, irrational.

Another instance of radical divergence is found in the opinions in regard to the food value of alcohol. It is a more or less general idea held by physicians and laymen that alcohol is an excellent food substance of equal value with the recognized fuel foods, the starches, sugars and fats. Pharmacological research, however, while indicating that alcohol, since it is oxidized in the body and to some extent spares the body tissues, or some of them, is undoubtedly a food, considered in the chemical sense of the term, indicates with equal definiteness, and with this the opinion of almost all the leading physiologists of the world is in accord (G, H, K, M, T), that it is not a good food from a hygienic point of view, or a food in any sense comparative in its value to the recognized food substances, since it cannot protect the body tissues in the same extent as these, and possesses poisonous properties which so affect the body, acting through the nervous system or by direct action upon the tissue cells, that it is impossible to feed the individual with it, under ordinary conditions at all events, to the extent of affording any substantial aid to nutrition without at the same time poisoning him. Thus, Van Leyden,<sup>2</sup> in his textbook upon dietetics, classes it not with the foods, but as an *erfrischungsmittel*, since, as he says, its drug effects bar its use as a food.

The reason for this extreme diversity of opinion lies principally in the careless attitude in

which the profession has received and continues to hold the drug. Owing to the very general use of alcoholic liquors as beverages in conditions of health, there has always been, and still is, among physicians a tendency not to consider alcohol seriously as a drug whose pharmacological action has to be considered in its administration, as in the case of strychnia and digitalis and other substances used solely as drugs. As a result, practitioners have not learned the pharmacology of the drug accurately or, having learned it, have disregarded its teachings, not feeling obliged to apply the same rigid principles of rational therapeutic procedure in this case, which they are accustomed to use in their general therapeutic practice.

This careless and unscientific attitude in regard to the use of alcohol which exists more or less unconsciously in medical practice, is clearly a wrong one, and is totally unjustifiable in the present condition of medical knowledge.

A drug should be used rationally or not at all. The wide use of alcohol, its well-recognized poisonous properties, and the extensive moral and social influence which the abuse of this drug, following the acquisition of the habit of using it, exerts, all unite to make a rational use doubly imperative in the case of this drug. The pharmacology of alcohol has been thoroughly worked out by extensive experimental research, and is today as definite as that of most drugs in the pharmacopeia. It should be possible, therefore, by collecting this pharmacological knowledge and that obtained by clinical observation of its use in the treatment of disease, and the theories and practices in regard to its employment which have come down in traditional use, and considering them together in the court of judicial medicine, to thresh out the false from the true, and determine for the use of the drug as rational and intelligent an attitude and procedure as exists in the case of most active drugs in modern medicine.

Considered pharmacologically, that is as a drug pure and simple, alcohol belongs to the group of narcotics or anesthetics, substances which act as intoxicants upon the higher nerve centres of the body (Schmiedeberg,<sup>7</sup> Cushny<sup>6</sup>). The drugs with which it is most closely allied in its drug action are perhaps ether, chloroform and chloral of the same group. These substances, especially the first, produce, as alcohol in small doses or in the beginning of administration, a condition of apparent cerebral excitement which is followed, as more of the drug is taken or as its final effect is accomplished, by depression and anesthesia.

The action of alcohol upon the nerve cells, by which it produces its drug effects, is undoubtedly a poisonous one, and places the drug among the narcotic poisons (Wharton and Stille<sup>2</sup>). It has been claimed by some writers that alcohol should not be classed as a poison (Atwater<sup>3</sup>) since it can be taken in small doses without producing demonstrable poisonous effects. These advocates urge that all substances are poisons when taken in sufficient quantity, and that the term should be ap-

\* Read before the Clinical Section of the Suffolk District Medical Society, Dec. 18, 1901.



plied to such substances only as always do harm to the body, that is, are poisonous in all doses. Such a claim cannot, however, hold for pharmacological classification, or even for practical consideration of a drug. For few, if any substance known, even among the most deadly poisons, causes *demonstrable* injury in all doses and all conditions. Strychnia and arsenic may be taken with benefit in proper doses. Morphia, like alcohol, may be oxidized in the body and in increasing quantities as the subject becomes more immune to it (Faust<sup>D</sup>). In scientific terminology the term poison applies to any substance which, when incorporated into the blood or applied to the body surfaces in relatively small quantities, produces disturbance of any body function (Fick,<sup>F</sup> Abel). Under this definition alcohol is certainly a poison (Fick,<sup>F</sup> Schafer,<sup>H</sup> Tigerstadt,<sup>K</sup> Abel<sup>L</sup>). For its most characteristic drug properties its depressant or narcotic effects upon the nerve centres are present, and can be demonstrated experimentally under the use of quantities of the drug, which, when the quantities in which it is commonly used among men are taken into consideration, are comparatively small. The extent of immunity to the poisonous action varies with individuals, as with all poisons, and it can apparently become increased by the use of the drug. In medicine it certainly deserves this title of a poison, for it is one of the most common poisons with the effects of which the medical profession has to deal.

In addition to its most characteristic drug influences, its depressant or narcotic effects upon the nerve centres of the body, in accordance with which it is classed pharmacologically among the anesthetics, alcohol influences the body in a variety of ways.

Its most immediate action when introduced to the body by the mouth is its local irritant action upon the mucous membranes of the mouth and stomach. As a result of this irritation a hyperemia of the membranes occurs and a reflex excitation of nerve centres, and, through those, of certain body functions, as the circulatory, or muscular, or digestive functions may be induced. Following this, after it is incorporated into the blood by absorption from the alimentary tract, it acts directly upon the nerve centres, most immediately the higher nerve centres, and through this action upon the centres governing special functions of the body, most particularly those of circulation, motion and respiration, influences these functions. Finally, the alcohol is in great part (95%) oxidized in the body, through this oxidation plus its effect upon the nerve centres and its destructive (poisonous) action upon the protoplasm of the tissue cells, influencing the metabolism of the body.

The special purposes for which alcohol is most generally used as a therapeutic agent in medicine today are: (1) As a heart stimulant; (2) as a nerve stimulant or general tonic; (3) as a digestive stimulant; (4) as a food; (5) as a general remedial agent in acute infectious conditions.

Let us now consider these various therapeutic uses of the drug which we see advised and practiced in the medicine of the present time, and determine how far each is rational in the light of our experimental knowledge of the action of the alcohol. (By experimental knowledge we mean here knowledge gained by deduction from either pure experimental work or clinical experience, in the determining of which proper scientific methods have been followed.)

#### ALCOHOL AS A STIMULANT.

The purpose for which alcohol is perhaps most frequently and generally used in medicine today is for the stimulation of the heart. It is used for this purpose for short periods in collapse from whatever cause; continuously for days during the course of acute diseases, as pneumonia and typhoid, where signs of heart failure are thought to be present; and by some physicians in cases of dilatation or valvular disease of the heart. It is classed as a heart stimulant in textbooks of medicine,<sup>A</sup> and many leading physicians consider it as such and advise it for this definite purpose. Is this use rational in the light of the most competent experience with the use of the drug?

A study of our evidence in regard to the question as to whether or not alcohol acts as a heart stimulant points to the conclusion that the best evidence at hand is against its possessing such action, always excepting the initial effect resulting from its irritant action, and certainly force us to the opinion that the use of alcohol for *this purpose of heart stimulation*, especially in continuous doses for periods of one or more days, as it is practised in the case of acute diseases or conditions of debility, is irrational, such use tending rather to defeat than accomplish this purpose.

The theory that alcohol is a heart stimulant has for its principal foundation the special facts of clinical observation, that acceleration of heart beat and apparent increase of pulse strength follow its administration. The fallacy explained below, into which a misinterpretation of these facts has lead the profession, serves as a good example of the danger of following the indications of clinical impressions alone in determining the action of a drug, a habit to which much of our confusion and error in therapeutic practice generally has been due. To my knowledge, there is today no evidence which can stand to prove that alcohol given regularly can increase the capacity of the heart to work, that is, that it is a heart stimulant. The only stimulant effect which it can produce is a reflex effect, which may result in a momentary increase of work by the heart, which, however, is soon overbalanced by the total effect of the drug, and therefore always gives a sum total effect of depression (Brunton<sup>F</sup>). Such an action may fit the drug for use in single doses in emergencies where momentary action is desired at any cost, but does not give it any value for continued use, to strengthen the heart.

The results of the most accurate experimental investigation in regard to the action of alcohol



upon the heart and the circulation are as follows:

Single doses of alcohol (20 to 60 gm.), if given in ordinary non-diluted form and under ordinary conditions, may cause a temporary acceleration of the heart action followed in measure with the size of the dose by a depression of the action.

If, however, the alcohol is given in well diluted form to avoid the irritant action upon the mucous membranes, and the subject is kept quiet to avoid increased nerve and muscular excitement, which are associated with the ingestion of the drug, it is found that no acceleration of heart action occurs (Zimmerberg, Jacquet). In these conditions small doses have no demonstrable effect upon the heart action; large doses cause depression of this action (Zimmerberg,<sup>8</sup> Jacquet,<sup>1</sup> Martin and Stevens<sup>2</sup>). The same facts are true of the effects of the alcohol upon the character of the pulse and blood pressure. With ordinary administration a greater fullness of the pulse may be observed. If precautions against irritant action and restlessness are taken, however, this effect is not obtained, the blood pressure remaining either unaffected or becoming depressed. Small doses of alcohol have no effect upon the blood vessels; larger doses dilate the vessels.

From these and similar results it is concluded that alcohol is generically a depressant of the heart and circulatory mechanism. Where quantity sufficient to cause any influence in either direction is administered, the sum total of effect is always a depression. Where an initial stimulation is obtained it is due, as Brunton<sup>7</sup> says, to the act of ingestion of the substance and to its irritant and reflex effects. The ingestion of any food or even of water causes results similar in kind (Brunton, Zimmerberg). These indirect effects of the administration of the drug are a part of its action, but not the whole of it, and it must be judged by its total effect. They are, of course, to be taken into account in a consideration of its use, but they must not be permitted to mask the true generic character of the drug, which is always depressant in kind and soon gets the upper hand of the effect of the reflex action.

This action of alcohol upon the circulatory system as accomplished in medical administration is entirely a result of the action of the drug upon the nerve centres controlling the heart and blood vessels. Evidence of direct action upon heart muscle is obtained only when the amount of alcohol in the blood reaches one-eighth to one-fourth of 1% of the blood, a quantity never present in human blood in medical administration (Diabella<sup>4</sup>). Such direct action obtained in animals is always depressant.

It is not intended by this statement to imply that the use itself of alcohol in these cases of acute disease is necessarily irrational, but simply that its use for this definite purpose of heart stimulation, and in this way mentioned, is so. Alcohol may have other actions which make it useful in certain of these conditions. And in a condition of collapse, as already stated, where it is desired

to produce a momentary excitation of the nerve centres, or vital organs through a shock to these nerve centres, alcohol, on account of the reflex effect of its irritant action upon the mucous membrane of the stomach, may, in a single concentrated dose, be of use, according to both clinical and pharmacological evidences.

It may, and undoubtedly will, be urged by some men that, since these pharmacological results are obtained principally in conditions of health, they cannot serve for indications in regard to the action of the drug in disease, where the conditions are different; in other words, that a substance which is a heart depressant in health may be a heart stimulant in a given diseased condition. In consideration of such a claim we will point out: (1) That our pharmacological evidences are collected from conditions of both disease and health, and are so far identical in quality in both<sup>44 46</sup>; (2) that we have no scientific records of any drug possessing a directly contrary pharmacological action in disease from that which it has in health, the difference of action, if any, being simply quantitative<sup>\*</sup>; (3) that since we have, in regard to this particular point at issue, no evidence of a clinical or of any other character pointing to a stimulant action which will bear the test of judicial examination, there is no occasion as yet to raise such an issue upon this subject.

A second character, in which alcohol is advised in practice, is that of a general nerve tonic. Continued use of small doses is considered to be useful in keeping up the body tone, or to help the individual in the accomplishment of continuous or arduous nerve and muscular expenditure in conditions of debility, chronic and acute diseases.

In regard to the generic effect of alcohol upon the nervous system there are two theories held today by physiologists and pharmacologists. The first, that of Binz and his followers, is that alcohol, when incorporated into the blood, first stimulates, then depresses, the nerve centres. According to others (Schmiedeberg and Bunge), and this is the view most generally held among pharmacologists today, it depresses the centres from the start. According to this latter school, of which Schmiedeberg is the most prominent authority, the apparent excitation which occurs as a preliminary stage in the action of the drug is in reality an increased action of certain subordinate centres, resulting from a removal of control or inhibition through the depression or paralyzing influence of the alcohol upon the higher centres, which normally exert a certain inhibitory control over these lower systems. The higher centres, being most delicately organized, are most easily affected by the drug, and the lower centres, being liberated from higher influence, run free for a moment, just as a heart runs free with paralysis of the vagus. Then these lower centres, being af-

<sup>\*</sup> In fever, for example, research shows that metabolism follows the same lines, the oxidation processes having, however, more activity. More alcohol may, therefore, be oxidized in fever conditions, but this cannot change it from a depressant to a stimulant.

fected in their turn, show a depression which, being the sum of the loss of the reserve strength incident upon their period of free action and the final depressant effect of the drug upon them, more than counterbalances the initial excitation, so that the total effect of the drug action upon the body forces is a depression (Schmiedeberg,<sup>7</sup> Binz,<sup>8</sup> Bunge<sup>9</sup>). It will be noted that under both of the above theories the final effect of the alcohol is considered to be a depression. The difference of opinion is simply in regard to the detailed action of the drug in accomplishing its total effect.

This question of the intimate action of alcohol upon nerve forces has been the subject of a large amount of investigation. Kræplin and his pupils have conducted a series of over 2,000 experiments to study the influence of alcohol upon psychical and psychomotor processes. The results of these experiments show that with small single doses of alcohol (15 to 30 gm., one-fourth to one-half bottle of wine) there is on the average, the results differing with individuals, a slight initial increase in the activity of certain simple psychomotor processes, as, for example, a shortening of the reaction time of simple motor innervation, as moving a finger, lasting from one-fourth to one hour.

With psychical processes, where the subject is obliged to dwell upon or compare sensations or perform less simple psychomotor labor, as, for example, the addition of columns of figures, or those involved in typesetting, the reaction time is increased, the depression of the nerve processes occurring with all doses. With doses of over 30 to 40 gm. of alcohol, all types of brain action are depressed.

Continued daily administration of from 40 to 80 gm. of alcohol in twenty-four hours caused after a few days a marked decrease in the usefulness of such psychical functions as memory or mathematical figuring, which soon disappeared when the alcohol was removed. Kræplin concludes that alcohol may, in small doses, stimulate for short periods certain motor centres, while it depresses all other brain centres, the sum total of effect, considering the whole psychical capacity, being a depression. In no condition, the author expressly states, does the alcohol enable the individual to perform a greater total of work in a daily or greater period (Kræplin,<sup>9</sup> Baratynsky<sup>11</sup>).

Experiments upon the effect of alcohol upon muscular power bring us to the same conclusion in this regard. Thus, experiments upon the effect upon single muscular action, as, for example, those of Partridge with the ergograph and dynamometer upon the muscular power of the finger or hand muscles, show that with small single doses there is, in some cases, an initial increase of work for one-half to one hour, with a subsequent depression, in some cases by a decrease from the start. Shafer found that the increase occurred only where plenty of nutritive material was present for the muscles, otherwise a decrease was present (Shafer,<sup>12</sup> Schumberg<sup>12</sup>). In no ex-

periments which will bear inspection was a total increase of power for work an evidence of any dynamogenic quality of alcohol obtained. The same initial increase was obtained by the ingestion of bicarbonate of sodium or nitrate of silver (Gutrickson), and followed the ingestion of sugar before time for oxidation elapsed, and is probably a reflex effect of ingestion of food. Mayer obtained similar results with introduction of water into the stomach.

By far the most conclusive results in regard to the nature of the action of alcohol upon the nerve functions and the power of the body for neuromuscular work are, however, those which are obtained, not from a determination of the effect of the drug upon special processes for special periods, but from a comparison of the total output of labor or neuromuscular force which the individual is enabled to put forth under the use of alcohol and that which he can produce in abstinence. The most accurate and complete experiment of this nature which we possess is that of Aschaffenburg,<sup>13</sup> upon the work of typesetters. A comparison of the results obtained from these men in periods of abstinence and periods of indulgence in moderate quantities of alcohol (35 to 40 gm. in 24 hours, equivalent to 2 ounces of whiskey) shows that at least 15% less work was performed in the alcohol periods.

Experiments upon the marching records of regiments, performed in the armies of the several nations, invariably give results which point to a similar conclusion. The same men can march less far and endure labor less well with regular moderate rations of alcohol than when using no liquor of any kind (*vid.* Parkes,<sup>14</sup> Baer,<sup>15</sup> Woodhead on Kitchener's Campaign; Hall, Kaffir War).

These results would then indicate definitely that alcohol is not in continued use a tonic to nerve or muscular action. In this finding pharmacological and physiological experiments are in keeping with practical experience among intelligent members of military and exploring expeditions, that alcohol does not increase the power for work, but simply induces a spirit which uses up energy faster, and is more than offset by the depression following, and that its use where any work is to be done is distinctly harmful.

In this connection the results of the use of alcohol upon the nerve cells, as studied by Dehio and by Stewart, are of interest. These researches showed that retrograde changes in the cell substance appeared regularly after the administration of the drug (Dehio,<sup>16</sup> Stewart<sup>17</sup>).

These facts certainly prove that the still too common custom of the use of alcohol as a tonic for nerve or muscular work in conditions of debility or chronic disease is irrational and probably harmful. They also, to my mind, give us food for thought in regard to the continued use of the drug in acute diseases, where a substance which lessens the capacity for endurance of nerve or physical labor is *a priori* the last thing which we wish to use.

## ALCOHOL AS A NARCOTIC.

From the point of view of pharmacology the rational use of alcohol for the purpose of its effect upon the nervous system is as a narcotic; for this is the characteristic action of alcohol which it possesses, as far as investigation has gone, under all circumstances and in all doses which have any effect upon the body whatsoever. Of course therapeutic experience must determine for us whether it is a useful narcotic and where. All narcotics are poisons, and we choose in our case that which will produce the greatest benefit in the case with the least danger. If in a given case alcohol is the narcotic which answers best to this requisite, it should be given. It is to my mind undoubtedly to this special influence of alcohol that the majority of the medicinal effects, variously interpreted as stimulation and tonic effects, which are obtained with the use of the drug, are due, always excepting the momentary effects of its irritant action. The higher nerve centres are depressed and thus the nervous excitement which accompanies acute disease or fatigue quieted, and this relief from nerve strain is rest to the patient and he feels better. The effect of the drug in conditions of shock which are reported may be explained in this way, if we adopt the theory so commonly advanced, that shock is a condition of nerve inhibition of the vital functions. Alcohol, in depressing or paralyzing the higher centres which control these inhibitory forces, relaxes the extreme inhibition which has obtained, and the results of shock are ameliorated.

## ALCOHOL AS A STOMACHIC.

A third common use of alcohol is as a stomachic. This use would appear to be to some extent borne out by the results of pharmacological studies. These studies show that alcohol produces in the stomach, through its irritant action, a hyperemia of the membranes. This may undoubtedly, if the irritation is not too great, cause an excitement of appetite. Through this irritant action and a reflex from it, an increased secretion of saliva in the mouth and of gastric juice in the stomach occurs. A similar increase of less extent is produced when alcohol is injected into the blood without contact with the stomach.

The total effect of alcohol upon the digestive process is a matter of controversy. The presence of 5 to 10% of alcohol in the stomach retards digestion markedly (Chittenden). With ordinary doses, Kretschy and Buchner found digestion retarded, while Eichenberg and Wolffhardt claim that it is accelerated. Klempner states that the mobility of the stomach is increased by alcohol. According to Brandl and Scanzoni the absorption of the fluid substances in the digestive tract is accelerated by small doses of alcohol. Zuntz and Magnus Levy in their experiments found absorption impeded. Mehring found that solutions of sugar and other substances in alcohol were absorbed from the stomach more rapidly than solutions in water. This evidence, combined with the experience of the wine-drinking nations, would indicate that alcohol taken with food may serve

digestion in the character of a *genusmittel*, a substance which by its pleasant taste and slight irritant effect may stimulate appetite. That it has any other influence upon digestion is not proven (Chittenden and Mendel,<sup>18</sup> Chittenden, Mendel and Jackson,<sup>19</sup> Buchner,<sup>20</sup> Scanzoni,<sup>27</sup> Magnus Levy,<sup>28</sup> Brandl,<sup>29</sup> Eichenberg, Gluzinsky and Mehring).

## ALCOHOL AS A FOOD.

A fourth character in which alcohol is much used and advocated in medicine is that of a food. It is given for this purpose in conditions of debility, chronic diseases, in acute diseases, and is even advised by some men for this purpose in health. The question as to whether or not alcohol should be considered as a food has been a matter of much controversy among physiologists and scientific men. This matter can be determined only by a study of the effect of the use of the drug upon tissue metabolism. The results of such a study are as follows:

If a given quantity of alcohol (50 gm. hydroxid in 24 hours), for example, be ingested the greater portion (90%, at a minimum, 94 to 96% as an average) is oxidized, the remainder passing through the body and being eliminated as alcohol (Atwater,<sup>30</sup> Stassman<sup>31</sup>). The influence of this substance thus utilized in the body upon the metabolism of the tissues is twofold. In the first place, the alcohol, in becoming oxidized, liberates energy which is thus supplied to the body. This energy serves to replace an equivalent amount which, in the absence of the alcohol, would have to be supplied by the oxidation of the body fats, and thus spares a certain quantity of fat in the body. Alcohol thus acts in the metabolism as a tissue-sparing substance or food. This fact has been demonstrated by competent experimental research (Zuntz and Geppert<sup>32 33</sup>). In the second place, the alcohol in circulating among the tissue cells produces certain derogatory or poisonous effects upon them which destroys a certain amount of protoplasm. Alcohol thus acts in the metabolism as a poison to the body. Evidence of this latter fact may be obtained in several ways. First, if a man be given a large quantity of alcohol there will be a marked increase in the nitrogenous waste of his body. This in itself occurring while a man is taking sufficient food to maintain nitrogenous equilibrium under ordinary circumstances is evidence of this poisonous property of alcohol for protoplasm. If the quantity of alcohol used is lessened, or as the individual becomes more immune to its use, the loss becomes less, and with small quantities becomes so slight that it falls within the limits of error of experimental records, or is so counterbalanced by the tissue-protecting effect of the alcohol that it is not apparent in results of experimentation. These facts in regard to the poisonous action of alcohol upon protoplasm are well illustrated in the numerous experimental researches which have been made to test the tissue-sparing influence of alcohol. For these experiments an individual who has been brought

to a condition of nitrogenous equilibrium upon a regular diet consisting of a mixture of proteids, carbohydrates and fats, has a certain portion of the carbohydrate and fat food replaced by an isodynamic quantity of alcohol, and the records of his metabolism in this alcohol period are compared with those of his regular food period. In these experiments it is practically invariably found (in sixteen out of seventeen performed upon men up to 1901) that on the day after the substitution of the alcohol for the regular food, the condition of nitrogenous equilibrium is destroyed, the body losing nitrogen, this loss continuing for four to six days, the period of most experiments, so that the average of the alcohol period shows a decided loss of tissue to the body. Upon the return substitution of the fat food for the alcohol the equilibrium is again restored. Now these results are distinct evidence of the poisonous action of the alcohol upon protoplasm; and they prove that this action can be demonstrated with moderate quantities, the quantities used being from 50 to 70 gm. of alcohol in twenty-four hours. For we know that alcohol spares isodynamic quantities of fat to the body; and we know that this tissue fat can spare a certain quantity of proteid (V. Noorden<sup>40</sup>). Why, then, is the proteid loss not controlled by the fat in the body spared by the alcohol when the alcohol is being administered, as it is when the body fat is protected by sugar of fat in the diet? Clearly because there is greater loss during the alcohol period. The fat protected by the alcohol does serve to protect proteid to its full extent just as it does when sugar or fat are taken. It is insufficient, however, to protect it against both the regular loss and also the extra loss due to the alcohol poisoning, and hence the loss of equilibrium under alcohol (Kassowitz<sup>41</sup>). Equilibrium can be maintained in such cases, as shown by Stammreich, von Noorden and Roseman, only by giving the individuals quantities of proteid, more than sufficient for their needs, which will serve to make up for the extraproteid destruction. This point is further elucidated by some recent experiments of Neumann and of Roseman. These authors show that in individuals thus experimented upon the loss of nitrogen which is seen in the first four to six days of feeding with alcohol grows less after this period until it becomes the same as with the feeding of fat or is at all events less than in the control period when the patient is on a diet which is equal to the regular diet used minus the calorie value of the alcohol. That is, the individual after the first few days becomes accustomed to the alcohol so that the poisonous effects are less and can be offset by the proteid-protecting effect of the alcohol consequent upon its oxidation in the body.

The evidences of the action of alcohol upon the body metabolism thus indicate that alcohol is thus acting in the body at the same time as a food and a poison, the oxidized portion serving to protect the body tissues, the circulating portion tending to destroy them. Where small quantities are

used so that the poisonous unoxidized residue is small, the individual may be or becomes so immune to the poisonous action that the alcohol may help, if given with plenty of proteid food, to maintain the tissue equilibrium (v. Noorden and Stammreich,<sup>42</sup> Roseman,<sup>43</sup> Neumann<sup>44</sup>).

References: Roseman, Pflüger; Arch., 1901, Bd. lxxxvi, S. 307<sup>x</sup>, gives a record and critical review of all recent experiments upon men and animals and a complete summary of the subject of the food character of alcohol.

The results of scientific investigation at the present time would then indicate that alcohol is to be considered as a food from a physiological point of view. This being established, the only further question for medicine to determine is whether it is a good food for use in disease or in any special diseased conditions. The first point, whether alcohol is a good food for use in disease generally, can be very promptly settled. Both experimental and clinical observation and study have proven to us that alcohol, in addition to its food properties, possesses certain drug properties, as a result of which it tends to produce disturbance of the nervous system and destruction of tissue protoplasm. Also the study of pathology has shown that the continued use of alcohol tends to produce certain changes in the tissues of certain of the body organs harmful to the integrity of the organs and their function.

These facts, determined principally by the observation of the effect of alcohol upon individuals in a condition of health, have definitely established the opinion in which we find practical unison among all scientific men today,—physiologists, pharmacologists and dieteticians,—that alcohol can play no rôle, and is not to be considered as a food substance for use in health under ordinary circumstances. For it is not rational to use for a food a substance which possesses poisonous properties, and which, when given in quantity sufficient to aid materially in the nutrition of the body, will exert these properties and produce disturbance of the body functions when we possess and can utilize other food substances which can be used in sufficient quantity without producing results other than beneficial to the organism\* (Foster,<sup>45</sup> V. Leyden,<sup>46</sup> Roseman, loc. cit., p. 273, Fick,<sup>47</sup> Bunge,<sup>48</sup> Schafer,<sup>49</sup> Tigerstadt,<sup>50</sup> Howell,<sup>51</sup> Halliburton.<sup>52</sup>)

And this same reasoning which applies to the use of alcohol in health applies to its use generally in disease. In most diseased conditions which come under our care, the conditions of metabolism do not vary greatly from those of health, or vary only quantitatively (Weber,<sup>53</sup>

\* Different individuals possess varying degrees of immunity to the poisonous action of alcohol. Small quantities may be taken by many individuals without producing demonstrable evidences of any poisonous influence. And this immunity may perhaps be increased by continued use of the drug, as with morphia. In many cases the poisonous action can be demonstrated with doses of 20 gm. of alcohol (12 gm. Tigerstadt), an amount equivalent to about an ounce of cognac or six to seven ounces of wine, with a calorie value of 140 cm. And the quantity which the average individual, in America at all events, can take with immunity is certainly, at a maximum, 60 gm. in twenty-four hours, equivalent to a half-pint of 10% wine, a quantity which has a calorie value when utilized of less than 350 calories, one-eighth to one-ninth the food necessary for body combustion (Tigerstadt &).

Svenson<sup>46</sup>). The drug which depresses the nervous system or wastes protoplasm in health will do so here. The patient can utilize the regular food substances in one form or another in full quantity or to the extent that he can take any food whatsoever, and there is no necessity or excuse, from the point of view of providing a food, of including alcohol in the diet. These statements will apply to the use of the drug for food purposes in conditions of debility, phthisis and most chronic diseases, and to its use generally in any and all diseased conditions.

In the case of special diseased conditions, however, the matter may wear another aspect. Among such conditions we may have, for example, a condition, in pneumonia or typhoid for example, where the patient cannot utilize the ordinary food substances and can utilize alcohol. In such a case it is, of course, rational to use alcohol as a food. We have, of course, to give in such a case quantities far above the normal limits of immunity to the poisonous effects of the drug, and we must expect to produce to some extent these effects. But we are perfectly willing to risk these for the sake of the nutritional value of the drug.

Such conditions as the above, where alcohol is the only food which can be used, are conditions for the use of alcohol as a food, and they are to my mind, with a few special exceptions, the only conditions in which its use *for this purpose* is rational. In a majority of cases of acute disease the patient can take other foods. And if this is so, there is to my mind the same reason against its use here as in health. Metabolism in the acute diseases, according to what experimental data we have, differs quantitatively from that in health, and only thus. In febrile conditions the oxidation processes and nitrogenous waste are increased.<sup>44</sup> Diakanon, in the only experiments upon the effect of alcohol in febrile disease which we possess, experiments upon two cases of typhoid and one case of pleurisy, found that its influence upon proteid metabolism was no greater than in health.<sup>45</sup>

The fact that oxidation is more active in fever, may result in a greater oxidation of alcohol in such conditions than in health, and may thus account for the commonly reported observation, that patients with fever can take more alcohol without showing signs of intoxication than individuals in health.

However this may be, it is only a question of increased immunity to poison, not of the absolute loss of the poisonous character by the alcohol, and to use a substance with poisonous properties for a food in conditions where other foods can be utilized is not rational medicine.

Among our special diseased conditions there are a few in which the changes in metabolism, as compared with the metabolism of health, are not only quantitative but also qualitative. In such conditions it is possible that alcohol may have a food or drug action quite separate from that in health. To determine this point experimental re-

search with the use of alcohol in each condition is necessary.

Work of this kind has been done in one of these diseases, Diabetes Mellitus, by Hirschfeld.<sup>48</sup> This investigation shows, like those upon health in some experiments, in some an increased loss of nitrogen with alcohol, in others a slight sparing of nitrogenous substances, and indicates, as do all researches with alcohol in disease so far reported, that the action of the drug upon metabolism in disease is similar to that in health.

So much for the consideration of rationality of the employment of alcohol in the more common special uses for which it is advocated and used in medicine generally.

In addition to this general use for specific actual or hypothetical pharmacological actions independent of the type of disease under treatment, as, for example, a heart stimulant in typhoid, as a food in acute febrile disease or diabetes, as a sedative for insomnia or in shock, the drug has a very extensive use as a special therapeutic agent in several definite diseased conditions, as, for example, pneumonia and other acute infectious diseases, phthisis, and conditions of sepsis from pyogenic infection. In many cases, in these conditions, it is used not from any special theory of stimulant or narcotic, or nutritive or any other definite pharmacological action,—for if it were proven that it had none of these special properties the physician would still use it in these cases,—but because extensive experience in its use in these conditions has proven to him that it has a beneficial influence on the course of that particular condition.

What can be said of the rationality of its use under such circumstances? Simply this: that as regards the final therapeutic value of a drug in the treatment of a definite diseased condition clinical experience must be the *supremé guide*.

We have today no definite scientific knowledge of the total action of alcohol in pneumonia or sepsis, such as we have in regard to the action of quinin in malaria or of thyroid in myxedema, cases where pharmacological investigation has covered the whole ground and where its results and those of clinical medicine are in accord.<sup>46 48</sup> Additional research upon the use of alcohol in diseased conditions is needed. What results of scientifically conducted research with this use of alcohol we do possess indicate that its action here is similar to that in health. Pharmacology can at present prove to us that it is not rational to use alcohol for some special purpose in pneumonia, for direct heart stimulation, for example, or for a food in conditions where a more nutritious food may be taken, and that if we do use it for any purpose we must expect to produce a certain amount of nerve or heart depression, or if the kidneys are in bad shape a certain amount of deleterious action upon these organs and their function, and can thus serve to control our use of the drug in these conditions, but it cannot yet prove to us that the total effect of the use of the drug may not be beneficial. Drugs may have specific actions in

diseased conditions which pharmacology has at present no account of. For instance, alcohol may have a special antitoxic action in pneumonia or sepsis. Also its poisonous action may be less active in the changed conditions than in health.\* On the other hand, they may be more active. So that for our final verdict in regard to the value of alcohol in special conditions, pneumonia, for example, in default of absolute experimental knowledge of the subject, we must fall back upon the evidence of our regular clinical experience.

This evidence of clinical experience appears in the shape of the opinions of physicians in general or hospital practice. If we collect these opinions we find, as stated at the opening of this article, that they show marked variance. Among the most competent men of the profession we find two equally assured sets of opinion in regard to the value of alcohol in these conditions in question, the acute infectious diseases, sepsis, phthisis, one affirming that the regular use of the drug in these cases, where infection is severe, is beneficial, the other claiming that such regular use is harmful. Still a third class, taking the stand that the evidence is not conclusive either way, do not use the drug in these cases, on the ground that unless we can have a definite reason for using drugs it is best to do without these elements in practical medicine. Which of these attitudes is the most correct it must be left to each physicians to decide for himself while awaiting more complete clinical and experimental study of the matter.

My own clinical experience with the use of alcohol in one of the most common of these special conditions in which it is advocated, pneumonia, has in sum total left me with the opinion that there is not at the present time a balance of evidence in favor of its beneficial action, when used for periods of a day or more, sufficient to indicate such employment in this disease. And my study of the pharmacology and experimental work upon alcohol has tended to entrench me still more surely in this opinion.

For here I find it proven conclusively that alcohol, in whatever doses it is given, is never a heart stimulant or dynamogenic for nerve or muscular work, but that when used continuously, even in moderate doses, it acts as a depressant in these regards. And if alcohol, in conditions of health, depresses the functions and makes the body less able to work and endure strain, as instanced most conclusively by the experiments upon the type-setters or those upon the soldiers already mentioned, it is reasonable to adopt, and certainly difficult to dismiss *a priori* the supposition that it will exert this same action to some extent in disease.

And, therefore, without good evidence that it fails of such effect, or exerts some other effect, which in its general results more than offsets such action in this disease, it is certainly acting against our knowledge to give it in a condition like pneu-

monia, in which the work of the body and its exposure to nerve and heart strain are excessive.

This same reasoning would apply equally well to its use in other conditions of acute infectious disease and sepsis.

It is not the intention of this review to deny that alcohol has any value as a therapeutic agent in medicine, or that all of its traditional use in such a capacity is irrational, but simply to present a critical study of this use, in the light of our present knowledge, with the hope of promoting a more careful consideration of the subject among physicians, and a consequent more rational use of the drug in medicine than that which exists at the present time. There is, in my opinion, no drug in wide general use in medicine in the employment of which there is shown so much carelessness and disregard of its specific drug properties, or with which so much harm is done, as alcohol. This fault in the traditional use of this drug has long been recognized by careful observers, and as a result the use in medicine has been for some time undergoing gradual restriction, the quantity per capita given in practice generally today being probably less than one-half that employed twenty years ago. And it is my opinion that, with renewed consideration of the subject in the light of the knowledge and experience upon it which exist at the present time, this use will be much further restricted and corrected.

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## A CLINICIAN'S ESTIMATE OF ALCOHOL AS A THERAPEUTIC AGENT.<sup>1</sup>

BY F. C. SHATTUCK, M.D., BOSTON.

I SHALL preface the brief remarks which I can make now on this important subject with the statement of two premises, which seem to me sound:

(1) We cannot reason directly from the effects of alcohol in health to those in disease.

(2) There are facts clinical as well as facts chemical, physiological or pathological.

Under each of these heads I permit myself a few remarks. What experience of life I have had leads me to believe that the healthy man, under ordinary conditions, in this climate, does not require alcohol, although he can use it moderately and habitually for years without any apparent harm. Its use may, indeed, afford him a legitimate pleasure, especially if it is taken in a dilute form and at only one period of the twenty-four hours, preferably with food. Wine, in moderation, maketh glad the heart of man today as it did in King David's time. In excess it has the same disastrous effects as it did upon Noah of old.

At the same time the great difference in individual toleration of this, as of any other potentially harmful agent, should be always remembered.

And I should like to call attention to what I believe to be a fact—that while a single moderate dose of whiskey or sherry, for instance, is

pretty sure to taint the breath of a man in health, much larger and repeated doses may be given in acute or chronic infectious diseases without tainting the breath at all.

Is there anybody here present who has not seen an amount of alcohol taken in disease without any obvious ill or toxic effect, which, if given in health, would have produced more or less profound intoxication?

Among many personal observations I will cite only two:

A boy of seventeen with pneumonia, not wonted to alcohol, takes a bottle of brandy and two quarts of champagne during twenty-four hours with no more toxic effect than if it were water. He recovered and acquired no fondness for drink. A lady of seventy, always temperate, prostrated with grip, takes for several weeks whiskey at the rate of a bottle every three days, with benefit, to the best of her and my knowledge and belief, certainly without a suggestion of any toxic effect. Such facts as these cannot be blinked. And so numerous are they, derived from so many sources, that very convincing counter-evidence must be brought by those who maintain that alcohol is under no circumstances consumed in the system, and consequently useless or harmful.

I think I have seen persons take alcohol with avidity and benefit for a time, and become instinctively unwilling to take it as the indications which led to its use have passed away. If this observation be true it tends to show that alcohol may be useful as a drug. The difference between its use as a drug and as a beverage should be kept more clearly in mind than is always the case.

As physicians we are under responsibility to see that its use as a drug does not lead to its abuse as a beverage.

Its use as a drug in acute disease, in my opinion, involves small risk of the establishment of a vicious habit. The case is far otherwise in chronic disease. Here also it may be very useful, as I firmly believe, but its administration should be carefully guarded by a realization of its dangers.

I recall the case of an old butler of one of my families. He was of English birth, and, as a young man, had used alcohol to excess. His master made a strong appeal to him which elicited a promise of total abstinence. This promise was faithfully kept. In his old age a senile heart and other infirmities seemed to me to indicate moderate doses of alcohol. My suggestion that he should take a tablespoonful of whiskey three times a day met with absolute refusal from him. I then had the druggist "doctor" whiskey for him, and he took his dose thrice daily for the rest of his life, apparently never suspecting the nature of his medicine, but telling me, whenever I went to the house, how much good my medicine did him. I have not had time to run to earth the author of the saying that "wine is the milk of old age." Sir James Paget quotes it in advising his aged father to drink five or six glasses of port wine daily.

<sup>1</sup> Remarks made in connection with the Discussion on The Value of Alcohol as a Therapeutic Agent in Medicine, Clinical Section, Suffolk District Medical Society, Dec. 18, 1901.



Secondly. There are clinical facts, the result of bedside observation, for which the textbooks and the microscope afford no explanation as yet. Among such may be cited the influence of potassic iodide on gummatous syphilis, of opium and the coal tar products as general, of cocain as a local anesthetic.

We can easily call up many clinical beliefs which passed as facts in their day, but which are now known not to be facts. And there can be no doubt that some of the clinical facts of the present day will be removed in the same way. One of these may be the belief of the great majority of clinicians the world over for thousands of years, that alcohol is a valuable remedial agent in disease, a belief which rests on an infinite number of observations made under the most varying conditions. This belief has so far withstood the spirit of skepticism and the demand for proof which for, roughly speaking, fifty years has animated and guided students of natural phenomena.

Whatever the future may have in store I, personally, can see no sufficient proof of the, to say the least, uselessness of alcohol in disease to warrant us in running counter to the mass of evidence on which the belief in its value rests. The burden of proof rests on those who deny its value.

In conclusion, I subscribe to and quote the words of Osler: "We are still without the agent which can counteract the gradual influence of the poisons which develop in the course of acute febrile diseases, such as typhoid fever, pneumonia." . . . "the chief effect of which is exercised upon the circulation, increasing the rapidity of the pulse and inducing a progressive heart failure. To meet this indication the general experience of physicians still points to alcohol as the most trustworthy remedy. Although some hold that alcohol in this condition is not indicated, I believe that it is in many instances the only remedy capable of tiding the patient over the most dangerous period."

## THE THERAPEUTIC VALUE OF ALCOHOL.<sup>1</sup>

BY E. N. WHITTIER, M.D., BOSTON.

I ENTERTAIN profound convictions of the therapeutic value of alcohol. I do not mean the alcohol of the shops, notoriously an impure article, with a percentage of 2 or 3 of fusel oil, nor the brandies whiskies, rums or wines of legion name and nature, having from 45 to 85 of harmful or, to say the least, useless diluents; but rather that form of absolute alcohol known as cologne spirits, anhydrous, deodorized, defuselized alcohol, widely known formerly as "Atwood's Alcohol," guaranteed by Squibb, and of late in this vicinity manufactured by Graves, under the Atwood process of rectification by manganic and hypermanganic acid.

My convictions of the great therapeutic value of alcohol are based on both personal and pro-

fessional experience in high, or, perhaps better, in extreme degrees of sickness. Professor Shattuck's admirable paper strengthens and confirms the views I have long held and been governed by. I am not disturbed in the least degree by the arraignment (highly authoritative and fully appreciated) of the methods that obtain in the practice of a very large percentage of physicians and are advocated in the writings of many of the most eminent authorities.

Personally, I am very much opposed to the use, but particularly to the abuse, of alcohol. Professionally, I shall continue to be guided by influences which during earlier years were, to be sure, relatively formative, but in later days and with increased experience and wider knowledge have become competent to establish rules governing safely and advantageously the therapeutic administration of this agent.

Tolerance—an objectionable word, I grant, but corresponding to that of opium when pain is present, and to arsenic in the treatment of various pathological blood states—is particularly true of alcohol, in the profound constitutional disturbances arising in the severe forms of acute infectious and contagious diseases.

Professor Shattuck's experience corresponds with that of many other observers of like large opportunities and freedom from prejudice, regarding the quantity borne by children and adults, in the gravest conditions, and without any of the pernicious effects quoted in laboratory work on subjects in their normal state of health. I do not apprehend that the pharmacological and "physiological" status of alcohol can displace the clinical, or, if I may so describe it, the pathological. Conclusions drawn from laboratory work are not in harmony with bedside observations in the matter under discussion. Toxicity, for a long time recognized as easily induced in a state of health by alcohol C. P., is almost unknown in the pathological conditions requiring the utmost endeavor to maintain life, and where in this form of alcohol is employed.

I am firmly convinced that the distaste, the nausea, the almost incoercible disinclination on the part of patients to take the various forms of alcoholic stimulants most frequently given, arise not at all from the alcohol, but from the various useless and, because useless, harmful diluents which make up the distinguishing features of odor and taste in the rums, brandies and whiskies given to patients when alcohol is considered needful. I speak in this matter from a personal experience of extreme gravity, and from professional observation during many years.

Standardizing remedies (a process of extreme difficulty) is nevertheless strenuously advocated. The modern synthetical group, with its formidable and lengthening array of symbols, is evidence of the part pharmacology bears in the preparation of remedies; the separation of the active principles from crude drugs, the demand for chemical compatibility of all compounds, the rapidly increasing subcutaneous method of administering

<sup>1</sup> Remarks made at the Clinical Section of the Suffolk District Medical Society, Dec. 19, 1901.

alkaloids, and thus providing for accurate absorption in conditions of gravest import, all demonstrate the demand for precision in the preparation and administration of remedies.

For more than twenty years the statement of an eminent authority, that "it is not easy to define whiskey," has stood unchallenged. I employ this quotation because whiskey appears to be the form of alcoholic stimulant most frequently used, and because the variety of organic substances from which whiskey is made is well-nigh endless. All things in nature which contain sugar, all starches and ligneous substances (since by modern chemistry starches and cellulose are convertible into grape sugar) may be employed in the production of whiskey.

I am unable to comprehend why men, insistent on the utmost purity in drugs, persistently employ mixtures wherein alcohol of doubtful quality occupies, at the best, barely a half-way position as to quantity, and ethers, essential oils, and other and undeterminable factors, complete the volume.

"Silent Spirit," flavorless, colorless, waterless, well-nigh odorless; the highest processes of rectification expend their powers in the removal of the harmful and in the retention of the helpful elements. It was the "Aqua Vitae" of the ancients, the "Usquebaugh" of the Celts, and until the middle of the seventeenth century only used as a remedial agent of great value.

In the highest contention known, the effort to arrest impending dissolution, alcohol will always maintain the position its ancient name imports. It needs no defense at our hands. There it stands, or rather flows, and will continue to flow, a distillate of beneficence, until time shall cease.

### THE INFLUENCE OF ALCOHOL ON THE HUMAN ORGANISM.<sup>1</sup>

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

ALCOHOL, except as a beverage on social occasions, has ceased to play any part in health. It is no longer issued as a ration in the navy or in the army, for reasons which it is unnecessary for me to detail. The use of alcohol has been shown to impair an individual's resistance on exposure to great heat. It has been tried and found unsuitable as a ration in arctic explorations. It has been discarded, except in the smallest quantities in a weak dilution, in the preparation of the athlete for his contests.<sup>2</sup> It has been found by experiment and by practice to diminish the muscular force, so that its use to encourage muscular effort is confined to the following condition, namely, where for a few instants of time a su-

preme muscular effort is desired it does enable a man to disregard his feelings and exert himself extremely. It actually lessens the muscular power and is prejudicial to continued muscular effort.<sup>3</sup>

If, then, alcohol in health diminishes the power to endure hardships in the soldier, the sailor, the Arctic explorer, the person exposed to the heat of the tropics, why should we expect a different sort of action in a person who is the subject of disease? The only possible advantage I can conceive of alcohol in the sick is its possible, but not proven, power to neutralize toxic matters when taken in not too large a dose, and its narcotic action. It is conceivable that it may either neutralize or antagonize toxic matter, the result of diseased processes. Future experiments and experience will have to demonstrate the truth or falsity of this hypothesis.

One of the best expositions of the influence of alcohol on the human organism is contained in a book of 260 pages, which has been written by Dr. Georg Rosenfeld, a specialist for internal medicine in Breslau. His work has been done in the laboratory of Professor Filehne, director of the Pharmacological Institute in Breslau, and presumably has his sanction, as in the preface the author thanks him for the advice which he has constantly accorded him in the preparation of his paper, and for his kind permission to carry out his experiments on animals in the institute. Most of my references have been obtained from this book.

In the consideration of the clinical use of alcohol, the question resolves itself into a discussion of its employment for a short time in the acute forms of disease, or for a longer time in certain chronic ones. The forms where its short use would most come in question are the acute infectious diseases, more especially with us in pneumonia, typhoid fever and influenza. Its longer continued use has been advocated in the chronic infectious diseases, as in phthisis; as a fattening food; in cases of cardiac disease; in gastric and intestinal infections; in kidney and liver disease; in diseases of metabolism, gout, rheumatism and diabetes; in the blood diseases, anemia, chlorosis, leukemia, pernicious anemia; in nervous diseases, and as a hypnotic. Let us briefly consider its use in the above order.

Its asserted value in the acute infectious diseases is either (a) as a protective agent against infection; (b) as an antipyretic; (c) as a food; (d) as a stomachic; (e) as an analeptic.

(a) As to its protective influence in furthering the immunization process, there are several papers in the literature of the subject. Among the first is that of Doyen,<sup>4</sup> who infected animals with cholera, and constantly obtained an active infection when he first put alcohol into their stomachs and then injected the organisms. Proceeding from the idea that he had by alcohol produced a

<sup>1</sup> Read before the Clinical Section of the Suffolk District Medical Society, Dec. 18, 1901.

<sup>2</sup> Mr. Arthur N. Rice, champion high jumper of Harvard and coach of the athletic team for a number of years, tells me that alcohol has no place in the dietary of the runner; it is bad for him in any dose. The high jumper may receive alcohol under the following exceptional condition alone: When his record has just been beaten by a jumper and the athlete is to put forth his entire force in one jump, alcohol has been given to put "courage" in him, but he immediately after the trial collapses.

<sup>3</sup> C. Th. Scheffer: Studien über der Einfluss des Alkohols auf die Muskelarbeit. Arch. f. Exp. Path., 1900, Bd. xxxiv, p. 24.

<sup>4</sup> Arch. de Physiol., 1885.

predisposing gastro-intestinal irritation, he then used croton oil, cantharides and sulphate of magnesia, but found them not so powerful in this respect as alcohol. Thomas<sup>6</sup> found that alcohol made his cholera cultures six or seven times more poisonous. Deléarde<sup>6</sup> found that in rabies he got no immunity from animals who were alcoholic during the inoculation, but if alcohol were omitted during the process he obtained it. In tetanus, during the use of alcohol immunity was difficult to obtain. In anthrax he found it almost impossible to secure immunity in those given alcohol. The Pasteur Institute found that it was impossible to obtain immunity against rabies in alcoholic subjects. Abbott<sup>7</sup> found, in experiments with staphylococcus pyogenes aureus, bacillus coli communis and streptococcus pyogenes, that the animals receiving alcohol succumbed to the infection more readily.

Valagussa and Ranelletti<sup>8</sup> found that animals previously treated with alcohol showed an increased sensitiveness to the diphtheria poison. Laitinen<sup>9</sup> found that alcohol under all circumstances distinctly and often considerably increased the susceptibility to artificial infection, and he further found the alkalescence of the blood was diminished thereby.

From the above valuable papers, as Rosenfeld says, we may draw the conclusion that in alcoholic intoxication we may find a very strong predisposing condition for the destructive action of bacterial infections and toxic actions, and in practice we find that alcohol drinkers oftener sicken of infectious diseases than those who abstain from its use. Moreover, it is a generally conceded rule that in alcoholics every disease has a greater intensity and a more pernicious course than in abstemious persons, and this is particularly the case in febrile diseases.

(b) As an antipyretic nobody would today seriously speak of alcohol. In the time of antipyrin, phenacetine, lactophenin, salipyrin, etc., the small power of alcohol in this direction has no importance. Today we do not speak of treating the fever. We give antipyretics only in small doses as nervines to dispel the troubles of fever, to diminish the headache and similar symptoms, therefore, alcohol as an antipyretic is no longer spoken of.

(c) *Alcohol as a food.*—Only a small part (less than 10%) of the alcohol is ordinarily excreted unchanged. The exact amount varies with the quantity taken. With medicinal doses the amount excreted through the lungs is 5 or 6%; kidneys, at the most, 1 to 2½%; skin and intestine, none. To this may be added a very small amount (three-tenths of 1%) in the milk, if the quantity taken is very large, none if moderate. Alcohol may be demonstrated in the blood for twenty-four hours after intravenous injections in large doses. The unexcreted alcohol must be oxidized with the ul-

timate production of CO<sub>2</sub> and H<sub>2</sub>O and the liberation of energy. It has been contended by some that the energy so liberated is not utilized in the body, that it is used up in the production of heat and is lost, but it has been definitely shown that it does not lead to an increase of oxidized consumption or CO<sub>2</sub> production. It must, therefore, take the place, to a certain extent, of the ordinary sources of energy, carbohydrates and fats. To this may be added a further saving of energy from lessened movement when the alcohol has a quieting effect; but alcohol is not a perfect substitute for carbohydrates and fats, for the latter may, to some extent, replace the nitrogenous diet, while alcohol does not appear to possess this property to any great degree (see below). If alcohol is substituted for carbohydrates or fats, it leads to a loss of nutrition, and it effects no saving if added to the ordinary diet. The other hydrocarbon narcotics act similarly.

Briefly, then, alcohol can to a certain extent take the place of carbohydrates and fats in food, or where the diet is insufficient it will save these constituents of the body. In this case, where the diet is insufficient, whether this be from insufficient supply, from faulty digestion or from extraordinary consumption, the food value of alcohol is considerable. When, on the other hand, the food supply is ample, this combustion of alcohol is harmful, for it then prevents the complete combustion of the ordinary foods, and the incompletely oxidized wastes produced are then excreted and are in this way lost to the organism, or they are retained, and then favor the development of fatty degeneration of various organs.<sup>10</sup>

That alcohol can spare albumin there is no doubt. Chotzen<sup>11</sup> found that 120 cc. alcohol spared 17% of albumin, but, as Rosenfeld says, he was distinctly intoxicated (berauscht) on the first day, and next day rocky (verkatert) and intoxicated. Such a distinct and energetic poisonous action, which we know is not an individual but a general action common to all mankind, speaks strongly against characterizing alcohol as a food; for we call that a food which is both harmless and life-saving, and not at all poisonous and injurious to life.

(d) *Alcohol as a stomachic.*—Alcohol may influence the process of digestion by acting (1) on the ferments; (2) on secretion; (3) on the movements of the alimentary tract, and (4) on absorption.

(1) *Action on ferments.*—It is so readily absorbed in the stomach that very little reaches the intestine, so that its influence is practically confined to the gastric ferments, chiefly pepsin. It is found that 1 to 2% of alcohol increases the rapidity of peptic digestion. Up to 15% it causes no perceptible retardation. With 15 to 18% the digestion is reduced by one-fourth to one-third. Twenty per cent strongly inhibits the digestion.<sup>12</sup>

<sup>6</sup> Arch. f. Experiment. Path., 1893, Bd. xxxii, p. 38.

<sup>7</sup> Ann. de l'Institut Pasteur, 1897, Bd. xi, p. 837.

<sup>8</sup> Journal of Experimental Medicine, 1896, i, 447.

<sup>9</sup> Ann. d'Igiene Speriment. ix, 118, cited by Laitinen.

<sup>10</sup> Zeits. f. Hygiene u. Infektionskrankheiten, 1900, Bd. xxxiv.

<sup>11</sup> Sollman: Textbook of Pharmacology, 1901, p. 424.

<sup>12</sup> Chotzen Zur Frage der Fleischersatzmittel. Dissert. Breslau, 1897. s. 26-27.

<sup>13</sup> Sollman: Loc. cit.

(2) *Effect on secretion of digestive juices.*—The saliva and gastric juice need only to be taken into account. Saliva: Alcohol in the mouth, strong or dilute, increases the amount of solids of the saliva, as do many other substances. This increased secretion does not take place if the alcohol is introduced directly into the stomach through a fistula. Gastric juice: The amount, the acidity and the solids are very markedly increased, even when the alcohol is introduced directly into the intestine and does not come in direct contact with the gastric mucous membrane. This juice is strongly proteolytic.<sup>13</sup>

(3) *Movements of the alimentary tract.*—These show a quickening.<sup>14</sup>

(4) *Effect on absorption.*—Alcohol is very rapidly absorbed. The absorption of other substances is also favored by it.<sup>15</sup>

The effects, then, upon the digestive organs are all merely expressions of its local irritant action. In mild stages it produces an increase of vascularity, and, as a result of this partly and partly through direct action on the cells, an increase of secretion, of movement and of absorption. In the severer grades, such as are produced by strong spirits or large doses, it causes vomiting and diarrhea, and if used constantly, chronic gastric catarrh. To sum up the experimental data on the effects of moderate doses, the action of alcohol on digestion is a purely local one, and, since alcohol does not reach the intestine, only gastric digestion need be considered.

"Moderate doses tend to favor the process of digestion through the increased secretion of proteolytic juice, through increase of the gastric movement and increased absorption. With a percentage of alcohol above 15 these are counteracted by the lessened ferment action. The actual result will depend upon which of these two, the beneficial irritant or the deleterious antiferment action, predominate. Actual experiments on intravital digestion are not yet sufficiently numerous, but as far as they go they show that in the dog the time required for the digestion of meat is about the same with and without alcohol, and metabolism experiments in man also prove that it does not diminish the utilization of food. Small amounts of weak alcohol taken at meals cannot, therefore, have a bad effect upon digestion, and may even act favorably. The alcohol should not be taken in strength greater than perhaps 20%. Even this would be too strong had it remained for any length of time, but it is absorbed so rapidly that its strength would very soon reach the favorable limit. Large quantities of alcohol, however, and especially when in concentrated form, produce an irritation which surpasses the physiologic limit and interferes with the functions. This is seen most markedly in chronic cases."<sup>16</sup>

The actual observations on the effect of alcohol in moderate doses on nutrition have led to the fol-

lowing conclusions: (1) With a diet on which the individual gains in weight the addition of alcohol lowers the rate of increase; (2) when added to a diet on which the weight remained constant it tends to cause a loss of weight; (3) with insufficient diet it lessens the loss of weight, or may even cause a gain.

L. Wolff<sup>17</sup> under Ewald's direction determined the gastric secretion of individuals without alcohol—and then under exactly the same conditions examined them after half a litre of beer or 20 to 30 cc. cognac. His method was the determination of the acidity. He found that cognac in small quantity slightly increased the HCl production. Larger doses often diminished the acidity and peptonization. Wolff finds in his experiments an explanation of the long-known fact, that "after frequent action of the above-mentioned article (alcohol), the irritation of the ordinary food is not answered with its former energy by the stomach." It is therefore no true stomachic.

(e) *Alcohol as an analeptic.*—If under the term "analeptic" we understand a means which improves the circulation, we may say of alcohol that such kind of action is at least not proven, for neither the pulse count nor the blood pressure is improved by even large doses of alcohol to any considerable degree. Moreover, the investigations of Kobert and of Pässler show that it is not a substance which narrows the small vessels. So far as we can determine, alcohol is not an excitant of the circulation. The indications which alcohol must fulfil to be an excitant of the circulation are twofold: (1) It must improve the *vis a tergo*, the cardiac power, and (2) it must improve the tonus of the small vessels. The disturbance of the circulation in infectious diseases can be attributed to one of these two things: either the working power of the heart is insufficient, as in the diseases of the endocardium, myocardium, pericardium, or the enervation of the small vessels suffers in the involvement of the vasomotor centre, as in the general infections, sepsis, pneumococcus sepsis, etc. (Romberg, Pässler). In both these directions alcohol has proved itself as insufficient.

To recapitulate its action, alcohol is no great antipyretic; it is no stomachic and no analeptic. Its action as a food is hindered by its poisonous quality. That it can favor the immunization process in acute infectious diseases is to be denied. Why, then, has it been used so much in these conditions? It is easy to give; it is easy to take. The patient feels for a time more comfortable. It is expensive, and the patient's friends feel they have paid a good price for a good article, and the doctor thinks he has done something. I venture to assert that what a distinguished colleague said to me the other day is true, "If it did not taste good, alcohol would never be used at all."

Its use in the *chronic infectious diseases*, the best example of which is tuberculosis, may well

<sup>13</sup> Sollman: Textbook of Pharmacology, 1901.

<sup>14</sup> Sollman: Loc. cit.

<sup>15</sup> Sollman: Loc. cit.

<sup>16</sup> Sollman: Loc. cit.

<sup>17</sup> Beiträge zur Kenntnis der Einwirkung verschiedener Genuss- und Arzneimitteln auf der menschlichen Magensaft. Zeitsch. f. klin. Med., 1889, Bd. xvi, p. 223.

be next considered. It is given in this disease to improve the appetite and to facilitate the nutrition of the patient. That alcohol is no real stomachic is not questioned. That it may by improving the tone temporarily help us for a loss of appetite, no one will deny. Its constant use must, however, be carefully warned against, for we have all of us seen much harm done by this kind of use. It is no lasting stomachic.

*The use of alcohol in cardiac diseases.*—We have seen that alcohol is no analeptic and no heart or vascular tonic. (Professor Porter of Harvard has found that the action of alcohol on the heart directly applied is depressing to its muscular force.) Since I have withheld alcohol in cardiac diseases, I personally have had to use digitalis less often and I get more effect from smaller doses. Furthermore, cardiac pain and oppression are less frequent without it. With its use the kidneys do not act so well, as we all of us have frequently observed. The cardiac hypertrophy of aortic insufficiency bears alcohol better. For the right side of the heart it is a poison. Only in collapse is its use warranted, perhaps, and here even some other means are better though less agreeable.

*In gastric and intestinal diseases.*—In the former we rarely, if ever, find it useful except for a short time, as spoken of above. In the latter, alcohol is only exceptionally of service, namely, after an attack of profuse diarrhea, and then temporarily only. In kidney and liver diseases it is not to be thought of. In gout and rheumatism are we not better off without it? In anemias of various sorts it plays little part at the present time. In nervous diseases the universal testimony is that we are better without it, even in neurasthenia, where it has, perhaps, had its most frequent use.

As an hypnotic it facilitates the getting to sleep, but it shortens its duration unless the dose be large, when it acts as a narcotic, and the sleep is deep and not refreshing. In this respect it cannot compare with hydrotherapy.

Rosenberg says from his experience he would say that alcohol is no tonic, no analeptic (*Auregungsmittel*), but a narcotic, and the freer one keeps himself from its use, whether healthy or diseased, so much the less he disturbs his length of life and his capabilities, and with this I most heartily agree.

It becomes us all, both by our precept and our example, to do what we can to diffuse a proper and scientific knowledge of the action of alcohol on the human economy, and to restrict the prescribing of it to those cases where its use appears rational.

**GREGORY TESTIMONIAL BANQUET.**—Arrangements are being rapidly completed for the Gregory banquet to be held in St. Louis on April 17. Hon. A. M. Dockery, governor of Missouri, himself a physician and a student of Dr. Gregory, will preside over the banquet. Every indication points to a large attendance.

## PRACTICAL EXPERIENCE WITH HYDROTHERAPY.<sup>1</sup>

BY J. J. PUTNAM, M.D., AND G. W. FITZ, M.D., BOSTON.

The following is a brief report of certain experiments recently begun by one of us (Fitz) to determine the physiological effects of different kinds of baths. The observations have included chiefly the changes in blood pressure and pulse due to the baths.

The changes in pulse have been both marked and uniform, showing an immediate response to changes in the temperature of the bath. For example, an adult with a normal pulse of 80 entered the circular rain bath under light pressure so as to avoid all mechanical irritation of the skin, and at a temperature of 100°. The following variations of pulse and temperature were noted:

	Before.	During.				After.
I. { Temperature, water. ....	.....	110°	100°	90°	40°	.....
Pulse ..... 80	.....	110	90	70	50	.....
II. { Temperature, water. ....	.....	100°	110°	40°	..	.....
Pulse ..... ..	.....	70	90	50	..	74

No. II followed No. I immediately.

The first experiments to determine changes in blood pressure were made with Gaertner's tonometer, consisting of an elastic strip of rubber covering a metal ring which encircles the finger. Air can be forced into the space between the metal ring and the rubber in such a way as to shut off the entire blood supply of the finger. A stout rubber band is rolled from the tip of the finger up to this ring, thereby pushing the blood of the finger ahead of it and leaving the distal portion white. Air is now forced into the tonometer until a pressure of 180 mm. of mercury is developed. The rubber band is then rolled off of the finger and the pressure gradually reduced until the first return of color. The pressure is read and is supposed to be the maximal systolic arterial pressure.

This method, however, resulted in confusing inconsistencies in that different fingers of the same individual gave different results; this difference was in some cases as great as 20 mm. of mercury. Massaging the fingers and dipping them in hot water frequently raised the pressure 10 to 20 mm. The only explanation of these variations seems to be that the arteries of the fingers are so small that they share with the arteriols in their contraction, thereby causing a lowering of the systemic pressure. It would seem, therefore, that any instrument for testing blood pressure depending upon the pressure in the fingers, as, for example, the tonometer or Mosso's sphygmomanometer, must be liable to considerable error.

As a result of these inaccuracies, we were forced to adopt Hill and Barnard's method, which uses a larger compression ring and applies it to the brachial artery above the elbow. This gives

<sup>1</sup> Read before the Clinical Section of the Suffolk District Medical Society, Dec. 18, 1901.

a distinctly higher pressure than the Gaertner tonometer, and is obviously a more accurate gauge of systemic arterial pressure.

Our experiments have shown that normal pressure varies within moderate limits in different individuals. The effect of the hot cabinet is a marked diminution in blood pressure, which in some cases amounts to as much as 20 mm. of mercury. This lowering of pressure is greatest after the beginning of perspiration, and it is apparently due to the peripheral dilation which accompanies that process. This effect of the hot cabinet is of course the reason for the faintness which some patients experience in the cabinet, and suggests one of the dangers of its promiscuous use. Upon leaving the cabinet normal pressure is almost immediately regained owing to the reverse process of peripheral constriction due to the chill of rapid evaporation of water from the surface of the body.

The influence upon blood pressure of the circular rain douche, with its vigorous massage and stinging of the skin, and with the changes of temperature which may be employed, have not as yet been studied by us because of the difficulties involved in the way of appropriate apparatus.

The marked changes in the pulse rate under the influence of varying temperatures suggest correspondingly marked variations in blood pressure, and since both blood pressure and pulse rate are expressions of nerve reaction in the control of the heart's rapidity and force and of vasomotor changes in the vessels, we must recognize that we are exerting a strong influence upon this control. The beneficial result of such influence is shown by the increased strength and slowness of the heart beat and by its recovery of tone in cases of dilation when its diminution in size becomes evident even in cases which show no permanent change in blood pressure. Further experimentation, however, is necessary in order to make clear the detailed physiological effects of the various modifications of the baths, especially as regards temperature and pressure. When this shall have been done, the baths can be utilized with the precision desirable in all therapeutic treatment, and their present almost uniformly favorable effects will rest upon a scientific rather than upon an empirical basis. The results of our experiments thus far are of value mainly in determining advantageous methods of attack upon the problems involved and in selecting suitable apparatus for the study.

My [Putnam] contribution to the discussion on hydrotherapy will consist in a very brief statement of my experience with several small groups of cases which have been under treatment at the Hydrotherapeutic Institute at the Colby Gymnasium during the past few months, the patients having been under my care, however, as a rule, for some time previously, either privately or at the Massachusetts General Hospital.

Before speaking of these cases, I wish to make a brief comparison between the hydrotherapeutic measures available in a private house and those

which can be secured only in establishments such as the one to which I have referred.

There is no doubt that many, though certainly not all, of the benefits of water treatment can be gained by use of the domestic tub, especially if this is supplemented by the portable cabinet now so much in use, and is made efficient by the aid of a nurse or well-trained friend. In this way the hand-friction baths, the affusions, the wet pack, the dripping sheet, and other forms, can be effectively used at home, provided the physician has a sufficiently high standard with regard to the best possibilities of water treatments in general, and is willing to take sufficient pains to train or supervise the attendant in charge. As a matter of fact, however, the difficulties are great, and I think there are relatively few physicians who feel able to maintain these standards in a private home; and one of the first of the benefits to be thought of as coming from the existence of well-managed establishments is that they may be looked to as likely to show what can be done under the best conditions, so that one may know what to work for under conditions that are somewhat less favorable.

Again, such places afford a chance for accurate studies through which light may be looked for upon the physiological action of the various agencies embraced under water treatments.

A good deal of interesting work has been done with regard to metabolism effects, as indicated by increase in urea excretion, and with regard to blood pressure, and to changes in the composition of the blood, and increased capacity for muscular work, but all these need to be verified and to be carried further. Marked clinical differences are perceptible between the different sorts of baths classifiable as "tonic"; between the Schott baths, for example, and those which depend more on sharp temporary effects of temperature and pressure. Again, the resemblances and differences in action between the more stimulating sorts of hot and cold baths need closer study.

The beginning of a systematized attempt has been made to obtain light on some of these points through experiments directed by Dr. George W. Fitz, on which he will give a preliminary report tonight.

The Colby Institute is well equipped, in every essential respect, with conveniences for the best clinical work. In spite of its unfavorable hydrostatic position at the top of a high building, a pressure of forty pounds has been secured by the aid of a powerful electric pump, and in summer ice-tanks will be provided to secure cold water. The operators are women of intelligence and good training, and young men selected from the fourth-year class of the medical school, who have had a thorough preparation for this work and take professional and scientific interest in it.

For the present, physicians having charge of male dispensary patients can send them, in limited numbers, during the afternoon hours, particularly if they can pay about fifty cents, to cover a part of the cost of treatment.



The classes of cases which seem to offer especially interesting fields for study are the tuberculous, the diabetic, the anemic, the neurasthenic, the rheumatic and the cardiac. It may prove that even the spinal cases are susceptible of some real benefit, but with the friendly and critical co-operation of physicians having such patients in charge, more light may be expected on these questions.

The clinical cases of which I wish very briefly to speak are twenty-three in number. Ten of these are cases classifiable as neurasthenic; seven are cases of tabes; two are cases of other forms of chronic spinal disease with the symptoms of spastic or spastic-ataxic paraplegia; two are cases of paralysis agitans; two of neuritis. No cases have been considered where the treatments have been less than a dozen, while in some of them they have run over a number of months.

So far as the *neurasthenic* cases are concerned, it is very difficult to form a fair estimate of the value of the baths as such, so largely do the elements of encouragement and discouragement enter into the problem. Most of the patients have in fact gained while under the treatments, while a few have taken them without change, and a very small number have disliked and abandoned them. My best judgment is that this form of treatment is usually of distinct service, and I look to it as a very hopeful resource even when almost all other means at hand have been tried and have failed. The kind of treatment used has been one or another form of the so-called "tonic" baths, but varied within wide limits to suit the individual case. It is, I think, where the nutrition has been poor that the improvement has been most striking, but apart from this and apart even from any action that can be called "tonic," it has been a great deal to strike a certain emotional note of a favorable sort; to give a *sense* of stimulation, or a sense of relaxation, for the patient to carry away and utilize in half-conscious memory against a future need.

The next largest and most interesting group of cases is that of the *tabetics*. I have been for many years—in pursuance of Dr. Baruch's ideas—in the habit of treating my tabetic patients by the stimulation of hot, followed by moderately cool, douches, applied, as opportunity best offered, in one or another Turkish bath establishment of the city, or by domestic methods, but never so systematically as now. Here, again, it is difficult to estimate the share of credit that belongs to the water treatments, because I have also been using largely, and with great success, the co-ordinatory treatment devised by Frenkel, but I think there can be no doubt that the water can claim a share of the result, at least so far as relief of pain are concerned, and, to a certain extent, of the distressing girdle sensations.

I have two patients, for example, men of education and critical judgment, who have voluntarily continued their baths for some six months, that is, ever since the establishment was first opened, and feel thoroughly convinced that they

have received material benefit. In other cases the success has been less marked, but only in one or two has there been no sign of improvement. The co-ordination treatment is doubtless by far the more important of the two, even as regards the sensory disorders, but, armed with means of providing these two sorts of treatment, I now regard the entrance of a tabetic patient into my office with a certain degree of pleasurable anticipation.

Still more strange to say, a fairly good result has also been gained under the combined treatment by baths and exercises,—both given at the gymnasium,—in the case of a young man, a hospital patient, with *spastic-ataxic paraplegia*, a form of spinal disorder which has hitherto proved remarkably intractable. Here, also, heat and pressure, with moderate cold, have been relied upon, rather than greater degrees of cold.

Of the two patients with *neuritis*, one has received benefit, the other not, but the evidence from other sources is fairly definite that water-treatment in one or another form can be made of great service in affections of this sort.

The patients with *paralysis agitans* have, as might have been expected, improved only in so far as the general nutrition and sense of well-being was concerned, but in this respect there seems to have been a modest amount of real gain.

In conclusion, I would say that it has not been my experience that patients who have taken water treatments at a special establishment like this become discontented with the simpler forms of baths such as they can obtain at home, or unable to derive benefit from them. On the contrary, I believe that the standards of invigoration and reaction become higher in the minds of the patients, as in those of the physicians, so that they know better what to aim at with their domestic conveniences. Furthermore, their powers of reaction having become trained by the treatments which they have received from the skilled attendants, they are less likely to take cold in consequence of the slight exposures which home treatments are liable to entail. In this connection I wish to say a word about one idea which seems to prevail very largely among persons whose power of reaction is not especially good, and that is, that in order to secure it, it is incumbent on them to rub for a long time with coarse towels or hair straps, etc., after any sort of cold bath. One often hears patients say, with pride, that they have rubbed themselves until the arms were tired. In my opinion, the reaction obtained in this way is not the one at which the bath treatment aims. Moderate friction during the bath, as with the hand or a coarse linen towel or sheet, is doubtless a powerful aid to the temperature of the water in bringing about the tonic action on the circulation in the deeper parts of the body. But after the bath itself is ended the time has gone by when any considerable reaction, in a proper sense, is to be looked for, and the best course is to dry oneself as quickly as possible, and, if necessary, to cover the body at once with a

suitable sheet or robe, in order to prevent slow evaporation with its attendant chilling. With this same end in view the process of drying should be as rapid and as complete as possible.

The question is often asked whether the room in which the bath is taken must be warm. The best answer to this, I think, is that the walls should be fairly warm, so that there should not be much tendency for the body to radiate heat to them and thus to become itself chilled. As regards the air, the general rule may perhaps be given, that the colder the bath the less the necessity for warm air after it.

Finally, the colder the water (provided that the body had previously been thoroughly warmed) the shorter the time which is required for sufficient stimulation to bring on a suitable reaction. On the other hand, even if the water is at a very low temperature, a certain length of time of exposure to it is necessary for the best results. But, here again, the coat must be cut according to the cloth. If the patient is delicate he must content himself with water of higher temperature, reinforced by friction or by hose-pipe pressure, or with very brief applications of colder water, while if he is habituated to the methods, or is in robust health, he can generally bear comparatively long exposures to cold water of any degree, especially if other measures are concurrently used to bring on the reaction. So, too, if applications are to be made over a small portion of the body, very much colder applications can be used than are admissible when the whole body is to be immersed, and thus some patients gain more real benefit by bathing to the waist in water of very low temperature, while the rest of the body is kept thoroughly warm, than they do by general baths of a higher temperature.

## Medical Progress.

### REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

#### RODENT ULCER.

DUBREUILH and Auché<sup>1</sup> present quite an elaborate study of this affection, both from a pathological and clinical standpoint. Jacobs of Dublin was the first to describe it clinically in 1827, and hence it has been sometimes called "Jacobs' Ulcer" and "Carcinoma Jacobs." The affection has been studied in England chiefly where the authors distinguish three periods. The first extends from the time of Jacobs to the studies of Hutchinson in 1860, in which it is sharply separated by its clinical characters from epithelioma of the malignant type. During the second period it was sought to confirm this difference by histological examination, in that the arrangement of the cells was a lobular or tubular one, that they were smaller than those in epithelioma, etc. In the third period the origin of the growth was

studied, and in 1894 the weight of opinion favored the hair and sebaceous follicles as the starting point. In Germany and France comparatively little attention has been paid to the subject.

With regard to etiology, of 110 cases analyzed, 25 occurred in men and 65 in women, and the age averaged 48 years at the time of the beginning of the disease. Two cases are cited where the disease began at 12 and 18 years respectively. Hence it is concluded that rodent ulcer occurs more often early in life than other forms of epithelioma. Rodent ulcer never springs from keratosis senilis, but there are reasons for thinking that a wound may be sometimes the starting point, and also a nevus.

Histologically the nodular form is divided into three types, the acinous, the alveolar and the trabecular, which are often associated with one another. Several processes of degeneration of the cells are observed: A stellate atrophy, followed by the death and disappearance of the cell; a necrosis *en masse*, producing cystic cavities in the centre of the epithelial alveoli; a form of coagulation necrosis; and a hyaline degeneration. One of the principal histological characteristics is the absence of epithelial pearls, except in rare instances. The starting point of the epithelial proliferation is the epidermis, the hair follicles and sebaceous glands.

Clinically, rodent ulcer develops usually by a papule or small nodule, which increases slowly in size and ulcerates. Sometimes the ulceration appears early; sometimes it may be months or years before it develops. The ulcerated surface bleeds less readily than in the other forms of epithelioma. The edges are made up of a hard raised rim which is characteristic,—the "rolled edge" of the English writers. This edge has the hardness to the touch, almost cartilaginous, that is characteristic of epithelioma in general. The neighboring lymphatic glands are not affected.

Rodent ulcer is always of very slow growth, and it takes usually several years for it to attain a size of 2 or 3 cm. It may remain stationary for years and then assume a more rapid growth. It has its seat almost always in the upper part of the face and especially in the neighborhood of the internal angle of the eye or the lateral portions of the root of the nose. The lower lip, so frequently the seat of the squamous-celled variety of epithelioma with epithelial pearls, is never affected in the form we are discussing. Cysts are frequently present in rodent ulcer, sometimes covering almost the entire surface. There is sometimes pigmentation, also.

A *forme térébrante* is described, characterized by the intensity of the ulcerative and destructive process. Its point of departure is usually the nose or the orbit, and it begins exactly like the ordinary form. The ulceration quickly attacks and destroys the skin of the nose and eyelids, and soon afterward the cartilage and bone.

The spontaneous cicatrization that is often seen in the course of this disease may predominate to

<sup>1</sup> Ann. de derm. et de Syph., August and September, 1901.

such an extent as to create a special form. It has a marked predilection for the frontal region, and it is probable that the cicatricial tendency is due to its situation. It begins usually as a small, pale or grayish nodule, which gradually extends, sometimes presenting a temporary ulceration, and cicatrizing in the centre. In this way a vast cicatricial plaque is formed, of irregular contour. The edge is slightly raised and very hard. Often-times there is pigmentation, especially when it is situated near the edge of the scalp. It extends peripherally with great slowness, lasting in one case 22 years.

[It will be questioned by some if all the forms described by Dubreuilh and Auché should be included under the rodent ulcer type, although it must be admitted that it is only a question of names if it is recognized that all are epitheliomatous in character and malignant. The case reported by White in 1894 as multiple benign cystic epithelioma is regarded by the writers as more probably belonging with the rodent ulcer type. Although several of the multiple tumors in that case offered considerable resemblance to rodent ulcer, the histological appearances coincided perfectly with the benign cystic form as described by Fordyce and others. At the same time the acinous type of rodent ulcer as described by Dubreuilh and Auché, bears sufficient resemblance to the benign form to make it questionable whether we can always draw a sharp histological distinction between these various types of epithelioma.—Rep.]

#### THE ETIOLOGY OF ECZEMA.

Bender, Bockhart and Gerlach<sup>2</sup> have endeavored by a series of experiments to add to our knowledge of the relationship that exists between the yellow and white pyogenic cocci and eczema. With this purpose, experimental inoculations were made on the human skin with pure cultures of these cocci, and also with the filtrate from the cultures, which contained the staphylococcus toxin. The cultures of the staphylococcus were obtained from the pus of furuncles or of impetigo, not from eczematous skins purposely.

In experimental inoculation with pure cultures of the pyogenic staphylococci, the action of the cocci themselves, or the poison contained in their living organism, must be kept separate from that of the staphylococcus toxin. By the staphylococcus toxin is meant the poison that is contained in the filtrate of bouillon cultures, which is probably a secretion product of the staphylococci.

The inoculations were made on the upper arm or forearm. The place was previously irritated either by scraping with a scalpel or by the application of plaster followed by washing with potash soap and alcohol. Agar cultures and the coccus organisms were rubbed vigorously into the skin with a glass rod, while the bouillon cultures and the filtrates of the cultures were applied on gauze which was kept continuously applied under an impermeable covering. The experiments were

performed on the writers themselves, one of whom had previously suffered from mild attacks of eczema. Control experiments were made with simple moist applications and sterile bouillon.

(1) Inoculation experiments were made with pure cultures of staphylococcus aureus and albus on agar. The result in five cases out of seven was the production of typical pustules of impetigo staphylogenes. In no case was an eczema produced.

(2) Staphylococcus organisms isolated from bouillon cultures, by filtering, afforded the same result upon inoculation as the agar cultures, that is, they produced impetigo but not eczema.

(3) Inoculation of the filtrate of old bouillon cultures of staphylococci produced on the irritated or not irritated, disinfected or not disinfected skin, typical, acute, papular or vesicular eczema, when applied to the skin for from 20 to 48 hours in the form of moist applications. The eczema produced in this way was a typical well-developed form, which sometimes spread spontaneously after the inoculation, and often had a relatively long course. The small primary vesicle of these eczemas proved to be sterile. The older vesicles filled with sero-pustular fluid sometimes contained the staphylococcus aureus or albus in pure culture.

(4) Inoculation experiments were made with bouillon cultures of staphylococcus albus. It was found that these also were capable of producing eczema, but not impetigo. From these experiments it is concluded that it is not the staphylococci themselves that cause eczema, but the staphylococcus toxin. In the presence of the staphylococcus toxin the cocci do not produce impetigo; in this case eczema alone is produced and the primary action of the staphylococci is inhibited.

In a later article Bockhart<sup>3</sup> discusses this question further. He regards it as proved by the foregoing experiments that the staphylococcus toxin, or staphylotoxin, as it has been called, always produces eczema on the skin and never suppuration, while the poison contained in the organism of the cocci, the staphyloplasmene, always produces suppuration and never eczema. This eczema is described as staphylotoxin eczema.

Staphylotoxin is unquestionably a very poisonous substance. In most of Bockhart's experiments only a local action was produced by its inoculation, but in two instances there were symptoms of an intense action on the system. It is supposed that the staphylococcus penetrates the skin by means of the follicular openings.

A microscopical examination of a bit of tissue excised from the staphylotoxin eczema showed edema of the papillæ, parenchymatous edema of a part of the epidermis cells, and an interepithelial edema of the epidermis. From the similarity of these findings with those emphasized by Unna on the anatomy of an eczema vesicle, it is concluded that the papule of the staphylotoxin eczema is

<sup>2</sup> Monats f. prak. dermat., Aug. 15, 1901.

<sup>3</sup> Monats f. prak. dermat., Nov. 1, 1901.

simply an incomplete eczema vesicle, as is the papule of papular eczema.

Staphylococci have been found by Bockhart and others in the mouths of the follicles of the normal skin. This explains why in the case of the fresh primary eczema vesicles, a part are found to contain staphylococci, while a part are sterile, the former being those situated over follicles that contain the cocci.

He concludes that eczema is an infectious inflammation of the upper layers of the skin. The causative agents of eczema are staphylococci. The healthy follicles of a predisposed individual may contain living, but inactive staphylococci. The micro-organisms may be rendered active by some cause either from within or from without, that improves the soil of the cocci in the follicle. This is followed by the excretion of staphylo toxin, which, as soon as it is poured out from the follicle upon the epidermis, causes the formation of papules and vesicles. The papule or vesicle over the follicle contains thin serum and staphylococci, while those in the vicinity of the follicle remain for a time sterile. Later the staphylococci in the vesicle at the mouth of the follicle begin to multiply, and leucocytes appear in the vesicle. Afterward these staphylococci migrate and infect secondarily the sterile vesicles in the vicinity and leucocytes also appear in these vesicles. Whether or not the vesicles become pustular later, depends on the amount of plasmin contained in the staphylococci. The opened vesicles and the weeping eczematous surfaces can be infected by staphylococci that contain much plasmin, and in this way the pyogenic complications of an eczema are brought about. If the eczema becomes chronic, tissue changes in the corium and subcutaneous tissues are produced that are not directly caused by the staphylococci.

(To be continued.)

## Reports of Societies.

### CLINICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting, Dec. 18, 1901, Dr. V. Y. Bowditch in the chair.

DRS. J. J. PUTNAM and G. W. FITZ submitted a report on

#### PRACTICAL EXPERIENCE WITH HYDROTHERAPY.<sup>1</sup>

DR. C. P. PUTNAM: I should like to say a few words about hydrotherapeutic measures, although generally for a different class of cases from those mentioned. Hydropathic treatment, until within a short time, has had to be used at home, although I have sent patients to this institution since it has been opened. I want to speak of patients treated at home, some for acute and some for chronic af-

<sup>1</sup> See page 284 of the Journal.

fections. Baths can be used with great effect in all cases of acute disease where restlessness and excitement are found, in cases of grip and pneumonia, all the eruptive diseases, etc., and also in chronic cases where the nervous system seems to require stimulation. By requiring stimulation I do not mean where patients are quiet and require to be made lively, but where they are excited and want to be quieted. I saw recently a boy with mumps merely, and yet he was in an extremely excited condition, and had been delirious a good many hours when I saw him. It seemed rather questionable at the moment whether the delirium and the other nervous symptoms could be due entirely to the mumps. The boy took a bath treatment and enjoyed it, and although he had been jumping around the bed and muttering and talking all sorts of things a good while before, he immediately went off to sleep and had a good night. It is not less true that in chronic cases that excited and nervous conditions are quieted by baths, and this is quite as true of young people as of the grown people, as my brother has already mentioned.

In practice the general way in most cases is to begin by giving hot baths and end by giving cool ones, and one may say roughly, the greater the distance between the high and the low temperature the greater the effect. With grown-up children and adults I generally start the bath at 105° and end at 80°. It is often necessary to reduce the temperature a degree or two lower than that. Young people do not like to get up so high or down so low in temperature as adults, but generally between 101° and 110° does for the beginning and between 80° and 75° for the end. Of course the latter is not cold, but only cool. Middle temperatures, on the other hand, are not nearly so good, especially in cases where there is not a very high temperature, because, unless they are prolonged, they do not have much effect, and if prolonged are apt to be debilitating. The alternation of the heat and the cold produce quite a different effect from the effect of the middle temperatures.

After these baths, whether in acute or chronic cases, it is generally better to put the patient to bed, because rest and sleep can often be obtained as at no other time. I have in mind a little girl whom it was extremely difficult to keep quiet at any time in the day except after she had had her bath in the middle of the forenoon, when she was glad to lie still and would get up thoroughly refreshed for dinner.

If it is impossible to get hold of an institution of this sort, one can in some cases in private houses rig up quite a good spray apparatus. The bathtub can be arranged with rubber curtains, and it is not impossible to throw water of the right temperature through a hose pipe if one cannot get the better arrangements of an institution.

I am going to take the liberty of passing around a drawing or sketch which I have just made, representing a baby in a wash-boiler. It

is to suggest to the members that the wash-boiler is one of the best things in which to give baths to a small person. In a shallow bath it is very difficult to keep the head out and the body in when the patient is lying down. A wash-boiler is just about the right size for putting in the small person and immersing the whole body except the head.

DR. TUTTLE: Hydrotherapeutics has been used at the McLean Hospital since the spring of 1897. Until the last of June in that year, when the hydrotherapeutic apparatus was installed, such procedures were employed as are adapted to the patient's bedroom or an ordinary bathroom, such as ablutions, the dry pack followed by half-baths or affusions, the drip sheet, etc. With the regular apparatus full baths have been given with varying degrees of duration, pressure and temperature. With patients of sufficient strength the immediate effect is stimulating and tonic, the appetite improves and there is a gain in weight and strength. There probably is a secondary and more permanent effect upon the blood vessels and circulation. There is no doubt that very pronounced effects can be obtained, and that one ought to prescribe it from accurate knowledge, because some of these effects may be had if the treatment is not adapted to the condition of the patient. I have been obliged to begin carefully with my patients, making use of the hot-air cabinet for a time long enough to cause warmth or gentle perspiration, a circular douche at a temperature of 100°-95° for 15 seconds, with a pressure of fifteen pounds, and a few dashes with the fan douche at a temperature of 85°. From this it was possible to rapidly increase the pressure and duration, and to reduce the temperature until a bath is given from which a good reaction is obtained. Many of my patients enjoy it.

The hot-air cabinet should be used with caution. Three have fainted in it, and the general complaint of neurasthenic patients, particularly early in the treatment, is of a feeling of exhaustion after a bath, which lasts several hours. I now begin very carefully with such patients, using the mildest of measures, and gradually changing to those which are more vigorous.

I have found cold packs very serviceable in cases of excitement. They are begun at a temperature of 85° and reduced daily till 60° is reached. The duration of each pack is from half an hour to an hour. They allay restlessness and sometimes cause sleep. If the time of these packs is much prolonged ill effects can be produced. The pack becomes a warm bath after twenty or thirty minutes. Soothing at first, it soon causes a rise in temperature. It then becomes exhausting and may be even dangerous. In general, I have thus far seen some very good effects from the use of hydrotherapy. Many patients have recovered, but they were cases of curable forms of mental disease.

DR. J. J. PUTNAM: In regard to the cases of tabes: in the first place, I would not be understood as claiming that all the cases turn out as

favorably under the Frenkel treatment as those to which I have alluded, and every now and then cases are met with where nothing seems to do any good. Nevertheless, where co-ordination is in question, and where the disease is not taking a malignant course, favorable results from co-ordination exercises may almost invariably be expected. Not only this, but the sensibility improves also, and that must indicate that the spinal cord and nerves are in a better condition to be acted upon by measures tending toward improvement than they would otherwise have been, and under those circumstances it seems to me it is fair to believe that these hydrotherapeutic measures, which do have a profound effect upon the circulation temporarily, and give things a lift in that way, may give just the help that is needed, that is, in cases that are already improving, they help the improvement a little further. That is what I should be inclined to claim.

DR. H. F. HEWES read a paper entitled

THE VALUE OF ALCOHOL AS A THERAPEUTIC AGENT IN MEDICINE.<sup>2</sup>

DR. F. C. SHATTUCK: After listening to Dr. Hewes's very interesting and clear exposition of the pharmacological studies of this question, I have some diffidence in speaking from the purely clinical standpoint and from the point of view of general impressions, for the lack of value of which we have the high testimony of Virchow. I have no so-called scientific statements to make, and I hope you will not think that what I have to say is egotistical; it is not meant so, but simply represents my own feeling and views on the subject, with such light as I have at my disposal.<sup>3</sup>

DR. E. G. CUTLER: Twenty-five years ago I thought very much as do Drs. Shattuck and Whittier. At that time, fresh from the schools and from abroad, I received, through the kindness of Dr. Shattuck, an appointment as visiting physician at the House of the Good Samaritan. My six months' term of service included the summer months. At the end of my first service it came to my ears that the bills for alcoholic drinks for the six months on which I had been on duty had never been equaled at any time in the history of the hospital, and, the lady manager who supported the hospital pathetically remarked, that she did not see that the patients were any the better for it. This set me to thinking and to investigating the merits of each case to which I gave alcohol, and as a result of my clinical experience and knowledge I have come to use less and less alcohol as the years went on, and at the present time I rarely give it except as a narcotic in collapse, as a temporary medicament in cases of loss of appetite, or in diabetes. I have never regretted not having given alcohol, but I have a number of times bitterly regretted having done so.

The question of individual tolerance, which has been dwelt upon by both Dr. Shattuck and

<sup>1</sup> See page 271 of the Journal.

<sup>2</sup> See page 279 of the Journal.

Whittier, is a curious one, but I personally have never in my life met with a case where anything like the doses which they speak of were either indicated or were taken.<sup>4</sup>

DR. R. C. CABOT: As to the value of general impressions: I think a good example is furnished by one statement in Dr. Hewes' paper, namely, the statement of the hospital managers, that the use of alcohol was not diminishing. I have looked up the facts at the Massachusetts General Hospital in regard to the amount of alcohol per patient every year from 1880 to the present time, and it shows a very interesting curve. The amount rose from 1880 to 1884, when a maximum of \$1.48 per patient per year was reached. From that point it begins to fall. In 1890, 76 cents per patient per year; 1897, 45 cents per patient per year; 1900, 29 cents per patient per year. It has fallen, then, from \$1.48 to 29 cents. I found these facts still more forcibly impressed upon my mind when I went through the wards in search of material to carry out some experiments. I could not find any patients taking alcohol and alcohol alone. I remember that when I was house officer, alcohol and alcohol alone was given in many cases. I could not find a patient in the hospital taking alcohol alone, and the nurses told me that was only what I should expect, that it was a long time since they had seen any patient given alcohol and alcohol alone. I want to ask Dr. Shattuck why he is using alcohol less than formerly. If the arguments he brought up are sound he ought to keep on using it as much as ever.

As to the use of the term "clinical facts," Dr. Shattuck has advocated the importance of clinical facts against laboratory facts. A fact is a fact wherever found. A clinical fact is a heart sound as found by the stethoscope, a blood pressure found by Gaertner's tonometer, a gain in appetite, an improvement in the amount of sleep, but we are not giving a clinical fact when we simply give our general impressions upon the utility or nonutility of any drug without mentioning any definite beneficial result due to it. I do not see that it is at all profitable for us at any time to draw the line between the clinician's facts and laboratory facts. Facts are always welcome. General impressions are relatively fallacious. The laboratory man might perfectly well have his general impressions and does, but he does not trust them. The clinicians should not trust them any more.

I have been trying to get some definite clinical facts about the use of alcohol at the Massachusetts Hospital. I have studied the therapeutic books of the men who believe in alcohol, and tried to see what particular good they think it does in febrile diseases. Most of them say it makes the tongue cleaner, the appetite improve, the sleep better, delirium less marked, skin moister and the pulse slower and stronger. Regarding these claims I am now carrying on an experimental research on some of the patients in Dr. Shattuck's

wards. Are the patients better in any statable particular after the taking of a given amount of alcohol? Are they definitely affected in regard to sleep, tongue, appetite, pulse, etc.? Although I have not gone far enough to report any results, it seems to me to point the direction in which, as with the use of Gaertner's tonometer, the pulse rate recorded on the chart and the other data recorded by the nurses, we can come nearer to a definite knowledge of the use of alcohol in disease.

DR. F. C. SHATTUCK: I give less alcohol because I give less drugs than I used to, and alcohol in sickness I regard as a drug. I also reserve its use in hospital to acute disease, feeling more recently than formerly, perhaps, the serious responsibility we, as physicians, are under with regard to its abuse. I formerly prescribed ale and beer, sometimes stronger forms of alcoholic drinks, to hospital patients with debility from one or another cause. I do not do so now. I quite agree with Dr. Cabot that a fact is a fact; but it may be convenient to classify our faith in accordance with the source and kind of evidence on which they rest. A clinical fact is one which depends on bedside investigation. Most facts in therapeutics are of this kind. The efficacy of cinchona bark in malaria was an established fact over two centuries before its action was explained scientifically. The curative effect of mercury and potassic iodide on syphilis is still unexplained. The laboratory does not help us understand the action of opium against pain.

DR. E. P. JOSLIN: Alcohol is valuable in the treatment of diabetes: (1) Because it will replace a certain amount of fat in the body. That is very essential, because there are few of our severe cases who get along on less than six to eight ounces of pure fat in one form or another a day. Two ounces of whiskey or brandy will lessen the need of taking about one ounce of fat. That makes a great difference to the patient. (2) Alcohol enables the patient to take a great deal more fat in diabetes than he could without its use. A teaspoonful of brandy or other form of alcohol after meals makes the fat "set well," why, I don't know. (3) Alcohol is valuable in that it stops the hunger, and is an easy form of lunch for the patient between meals, on going to bed or on waking in the night; one teaspoonful of brandy or whiskey will do what hardly anything else will. (4) Alcohol is valuable because of its sedative action. As for the dose, not over five ounces in twenty-four hours; one half to one ounce is usually enough. The severer the case of diabetes the more alcohol is generally indicated. Finally, alcohol is valuable in coma. Coma is caused, so far as we know, by an accumulation of an enormous quantity of acids in the body. These acids, when present in the healthy individual, as after simple starvation, disappear promptly on taking sugar. Sugar does not cause the disappearance of these acids in diabetes because the sugar passes through the body unchanged. Recently it has been shown that

<sup>4</sup> See page 281 of the Journal.



certain derivatives of sugar will lessen the acid intoxication, and among the derivatives of sugar we have alcohol. Von Noorden feels very strongly that alcohol is of value in coma, and recommends heroic doses. Schwartz<sup>5</sup> has recently demonstrated that gluconic acid, another derivative of sugar, will diminish the acids which cause coma. As yet, however, the alkaline treatment is our mainstay in this complication of diabetes.

### Recent Literature.

#### *The Practical Medicine Series of Year Books.*

Comprising Ten Volumes of the Year's Progress in Medicine and Surgery. Issued monthly under the General Editorial Charge of GUSTAVUS P. HEAD, M.D., Professor of Laryngology, and Rhinology, Chicago Post-Graduate Medical School. Volume I: General Medicine. Edited by FRANK BILLINGS, M.S., M.D., Head of Medical Faculty and Dean of the Faculty of Rush Medical College, Chicago. With the Collaboration of S. C. STANTON, M.D. Chicago: The Year Book Publishing Co. October, 1901.

The editor has felt that something was wanting in previous Year Books, or they would have been more used by the profession than they have been. After reflection he concluded that that something for which physicians in general were waiting "before taking to Year Book literature," was in the plan rather than in the quality of such literature. To meet this want he has decided upon the present plan, as stated on the title page. Each subject, or division of subjects, is treated in a separate volume. The division of General Medicine is embraced in two volumes, one appearing in October, the other in May of each year. This volume, a small octavo, contains 270 pages. It contains the literature of the past year upon those diseases which are most prevalent in the winter and spring; the May volume will contain the literature of the year upon those diseases most prevalent in the summer and autumn. Subjects which may not be much influenced by seasonal or meteorological conditions are assigned to the volume to which they most naturally fall. In Dr. Frank Billings the general editor has found a very competent person to take charge of the Department of General Medicine. The volumes are of a convenient size for the hand or the pocket. The paper and print might be better, but perhaps are all that the necessarily short life and the price of such a series of books justify.

*Nursing Ethics: for Hospital and Private Use.* By ISABEL HUNTER ROBB. Late Superintendent of Nurses and Principal of the Training School for Nurses, Johns Hopkins Hospital, Baltimore, Md., etc. Pp. 273. Cleveland: J. B. Savage. 1901.

With all the books on nursing in its various aspects which are finding their way into circulation,

<sup>5</sup> Prager Med. Woch., 1901, Nos. 30 and 31.

none, to our knowledge, occupies just the place of the one before us. From experience and training the author is amply justified in writing what others of less knowledge might well hesitate to attempt. The vigorous and straightforward description of what a nurse should be and how she should act under the varying conditions of her work is admirable and unquestionably needed. No details are considered too trivial for comment, and the book is full of warnings and suggestions which every nurse should read and take to heart. After a consideration of nursing as a profession, the probationer is taken in hand, and finally through succeeding chapters developed into a graduate nurse. The duties devolving upon her in her various stages of development are discussed with excellent judgment and force.

Whatever other textbooks may be used in the training school we are inclined to think this should have a place of special prominence. It is a matter of regret that somewhat better paper was not used, and that the general appearance of the book is not more in accord with the character of its contents.

*A Textbook of Medicine.* Begun by the late CHARLES HILTON FAGGE, M.D., F.R.C.P., sometime physician to Guy's Hospital. Completed after his death, and since revised and rewritten by PHILIP HENRY PYE-SMITH, M.D., F.R.S., Fellow of the Royal College of Physicians; Consulting Physician to Guy's Hospital. Fourth edition, in two volumes. Vol. 1. Philadelphia: P. Blakiston's Son & Co. 1901.

This is the fourth edition of a textbook of medicine begun by the late Dr. Charles Hilton Fagge, at one time physician to Guy's Hospital, and completed after his death, and since revised and rewritten by his friend, Dr. Pye-Smith, consulting physician of Guy's Hospital.

We have reviewed this book several times and it is unnecessary to go again into detail in regard to it, but we must not avoid once more expressing our very favorable opinion of it as a textbook of medicine. It is proper also to say that in the present edition the book has been rearranged and in part rewritten. Some of the old material has been left out and new has been added where indicated by the recent advancements and changes in medical science. The first volume is now in our hands and the second volume is expected to appear shortly.

*The Diseases of the Respiratory Organs, Acute and Chronic.* By WILLIAM F. WAUGH, A.M., M.D., Professor of Practice and Clinical Medicine, Illinois Medical College, etc. Chicago: G. P. Engelhard & Co. 1901.

This represents an attempt to compress into a small octavo of 221 pages the whole subject of diseases of the respiratory organs, including pathology and treatment. As a compendium it has some value, but it suffers from the faults common to all this class of aids to the student, so that it can hardly be commended for use beyond the bounds of the author's own lecture room.

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**INSUFFICIENT MEDICAL SERVICE IN THE NAVY.**

SURGEON-GENERAL RIXEY of the navy has recently submitted a strong letter to congress in support of his request for an increase in the number of naval surgeons, forwarded with the approval of the Secretary of the Navy. Dr. Rixey presents numerous facts to show that the personnel of his corps is insufficient to meet present and future demands upon it, and in its growth has by no means kept pace with other branches of the naval service. He shows that in the last four years the strength of the navy and marine corps has increased 87%; that the average number of enlistment examinations has increased 115%, that tropical service has increased the number of cases of disease and injury by 66%; that the time lost in the navy from sickness has increased 75%; and that the number of patients treated in naval hospitals has increased 111%. He also states that while at the present time it is only with great difficulty that proper medical attendance can be provided for the ships now in commission, there are twenty-seven ships now out of commission, requiring the services of thirty-three medical officers, which are liable to be called into service at any time. An additional number of ships now being constructed will require the services of fifty-eight more medical officers within two or three years at the most. With present insufficient numbers, it is impossible to grant the leaves to which medical officers are entitled, a condition which has produced much discontent and dissatisfaction with the service and a number of resignations.

Such an array of facts as is presented by Surgeon-General Rixey in behalf of an increase in his corps does not admit of intelligent opposition, and it remains to be seen if they will be appreciated by congress at their proper value or will be ignored and passed over without action, as seems

to be frequently the case where the needs of the medical branches of the governmental services are concerned. These latter have little influence and power, and claims founded merely on right and justice are too often pushed aside for political considerations. For these reasons, the needs of the medical branches of the services are always the last to receive attention from congress, and such a condition of affairs as is revealed by the above statements of Surgeon-General Rixey becomes known. The medical profession should awaken to its own political potentiality, and, through proper organization, place itself in a position to enforce the enactment of municipal, state and national legislation for the advancement of its interests.

**SENTIMENTAL MEDICAL WRITING.**

MERE sentimentalism, under any circumstances, should have an exceedingly small place either in literature or life. It is particularly offensive when it is forced upon us in writing meant to be scientific in tendency and scope. No degree of enthusiasm justifies printed rhapsodies over the inherent beauty of a tumor or the charm of a diseased ovary. From the point of view of the student of esthetics, it is no doubt a legitimate and highly interesting problem, whether pathological products are essentially beautiful. Many of us, no doubt, who have studied the results of disease by means of the microscope have been duly impressed with the exquisite arrangements of cells in new growths or other abnormal processes, however destructive we may have known these processes to be. Some of us may even at times have exclaimed: What a superb tumor! What a magnificent stone! This is praiseworthy enthusiasm, with a certain justification in philosophical esthetics. Let it not be checked, but also let us pray for self-control when we are tempted to transcribe such ebullitions in the pages of our so-called scientific articles. Spoken words are apt to be forgotten; written ones may, at least, not be, however much we may wish the contrary. Examples of the tendency to which we refer are not hard to find in our everyday medical literature. Here is one of the unrestrained variety, recently published in a most highly esteemed contemporary:

Once in studying a profoundly diseased ovary, with a power of four hundred, there was presented a picture of almost dazzling brightness: Long-branching protoplasmic bodies of exceedingly delicate and exquisite organization, winding in all directions, and in most graceful curves. It made a fairyland of beauty. It was a forest of wonderful structures. But the ovary! In it was found no normal tissue. Large portions were transformed into this peculiar growth, which was

filled with coarse granules, hematoblasts, and other life material, proving its innate powers and, possibly, its destructive tendencies. . . . The microscope reveals the pathological change, clinical history gives the life reflection, and makes the momentous reverberations of the almost tragic records.

Just what all this may have meant to the writer it is of course beyond our power to discover, but that a "fairyland of beauty" is an exceedingly poor description of a diseased ovary is sufficiently self-evident. Ovaries are to the unsentimental student simply structures of special anatomical form; they are surely not, even in pathological conditions, "pictures of dazzling brightness" or "fairylands" or "forests." Why not be "homely in our drift," when we are attempting to describe facts? Science would certainly be a gainer, and medical literature no loser thereby.

#### DISINFECTION OF THE HANDS.

THE question of hand disinfection is naturally a very important one, and one about which there is likely to be considerable difference of opinion for some time to come. Dr. Charles P. Noble of Philadelphia, writing in *American Medicine*, narrates a personal experience which is of interest in this connection. He had been in the habit of using the usual soap and water, alcohol, permanganate of potash, oxalic acid, followed by a bichloride solution. The method was satisfactory until, with the introduction of rubber gloves into surgery, a black discoloration of the nails followed its use, due to the formation of sulphide of mercury. To avoid this unpleasant consequence Dr. Noble was led to experiment with a solution of formaline in place of the bichloride. The result of the use of formaline for about a month was a violent inflammation of the finger tips, involving the nails. There was for a time danger that the nails would be exfoliated, an outcome which was averted by vigorous treatment. The result was a separation of the nails for about one-third of their length, from which recovery, at the time of writing, was gradually taking place.

After a careful investigation the conclusion was reached that the following factors were concerned in the production of the inflammation: First, the use of formaline solution, and, second, its prolonged contact with the finger ends, there being enough of the solution left inside the gloves to keep the finger ends moistened in the solution while the gloves were worn. It transpired also that gloves which had been filled with a 1 to 500 solution of formaline had, just previous to the appearance of the inflammation, been worn for four hours on two successive days.

The moral to be drawn from this experience is the importance of avoiding a prolonged contact

with formaline, even in dilute solution. How far formaline will supplant the usual bichloride solution is still open to doubt; it certainly has definite drawbacks in its effect upon mucous membranes, its pungency of odor, and its highly irritative action upon the skin. In all these respects bichloride is to be preferred, and will, no doubt, retain its place of favor until some other substitute be found, with fewer disadvantages than the commonly used preparation of formaline.

#### MEDICAL NOTES.

THE AMERICAN ASSOCIATION OF UROLOGISTS.—The above association was organized on Feb. 22, 1902, essentially for the purpose of further development in the study of the urinary organs and their diseases. Although most of the founders of the association are specialists in genito-urinary diseases, membership is not limited to those engaged exclusively in this specialty. Thus gynecologists, who embrace renal and vesical surgery in their work, are among the founders, as are also several gentlemen who devote themselves to the microscopy and chemistry of the urine, as well as a number of practitioners interested in the study of the kidney from a medical standpoint. The association consists of active, corresponding and honorary members, and is in great measure modeled upon the plan of the Société Française d'Urologie, modified to suit American circumstances and conditions. Whenever possible, the branch associations throughout the United States, British Possessions and Spanish America, will hold their meetings on the same evenings as does the parent association in New York (the first Wednesday of each month). The work of the association is principally clinical, for the demonstration of new methods of the technique of examination and treatment. The annual meeting of the American Association of Urologists will be held on the last day and the day following the annual meeting of the American Medical Association. The officers of the association are: Ramón Guiteras, M.D., President; Wm. K. Otis, M.D., Vice-President; John Van der Poel, M.D., Treasurer; Ferd C. Valentine, M.D., Secretary; A. D. Mabie, M.D., Assistant Secretary.

PASTEUR INSTITUTE, BUDAPEST.—According to the *Philadelphia Medical Journal*, during 1901 the Pasteur Institute at Budapest treated 2,490 patients. Ninety-one per cent of these were bitten by mad dogs, 6% by mad cats, and the rest by other animals. The average length of treatment was 18 days. Of the total number treated, .28% only contracted hydrophobia. The Servian Government has sent a commission to Budapest to study the methods employed.

**INSPECTOR F. B. STEPHENSON A CHARTER MEMBER.**—On Feb. 18, 1902, a chapter of Phi Beta Kappa was organized at Allegheny College, Meadville, Pa. Among the foundation members made at this time was Medical Inspector Franklin Bache Stephenson, U. S. N., now in charge of the Medical Department of the Naval Station at Portsmouth, N. H.

**FOUR CENTENARIANS.**—It is reported, apparently on sufficient authority, that the following persons have recently died at the ages respectively of 103, 106, 108 and 112; Daniel Harrington, a recent immigrant from Ireland; Deborah Doty, of Frewsburg, N. Y.; Margaret Carpenter, of Philadelphia, and James Walsh, Maryland.

**A SWEEPING VACCINATION LAW.**—It is reported that a law has been promulgated in France which makes vaccination against smallpox compulsory in the first year of a child's life, and requires revaccination at the age of eleven years and also ten years later.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Mar. 12, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 25, scarlatina 18, measles 197, typhoid fever 11, smallpox 19.

**BOSTON MORTALITY STATISTICS.**—The number of deaths reported to the Board of Health for the week is 230, as against 238 the corresponding week last year, showing a decrease of 8 deaths, and making the death-rate for the week 20.92. The number of cases and deaths from infectious diseases is as follows: Diphtheria, 34 cases, 7 deaths; scarlatina, 26 cases, no deaths; typhoid fever, 4 cases, 2 deaths; measles, 233 cases, 5 deaths, tuberculosis, 23 cases, 28 deaths; smallpox, 17 cases, 6 deaths. The deaths from pneumonia were 37, whooping cough 1, heart disease 24, bronchitis 17, marasmus 4. There were 10 deaths from violent causes. The number of children who died under one year was 48; under 5 years, 66; persons more than 60 years, 49; deaths in public institutions, 70.

**NEW STATE SANITARIUM FOR TUBERCULOSIS.**—The Committee on Public Charitable Institutions of the Massachusetts Legislature gave a hearing last week to Senator W. T. A. Fitzgerald, Dr. E. O. Otis, and others, on the former's petition for legislation to provide for the erection and equipment of a new State sanitarium at a cost not exceeding \$150,000. Senator Fitzgerald made an earnest appeal in behalf of this institution. He stated that every private house in Rutland which would take patients was filled with people paying

\$7 and \$8 a week until such a time as the institution could find room for them. He was of the opinion that the State should proceed to build another institution at once, and that it should contain a larger proportion of free beds for those who could not afford to pay for their treatment.

**HEARINGS ON REGULATION OF VIVISECTION.**—The bill before the Legislature of this State for the further prevention of cruelty to animals was heard last week by the Committee on Probate and Chancery. Mr. Asa B. French appeared as counsel for the petitioners; Dr. H. C. Ernst will conduct the case for the remonstrants, with the co-operation of Dr. H. P. Bowditch, Dr. Theodore Hough, Dr. W. T. Porter, and others. The hearing was continued till March 14, at 10.30 and 3 o'clock. The following hearing will be given on March 18 at 3 o'clock, when it is hoped to bring the matter to an end.

#### NEW YORK.

**IMPORTANT RULING REGARDING VALIDITY OF A WILL.**—Joseph H. Bryan, who died in September, 1899, left a will in which, although he was survived by a widow, he bequeathed the bulk of his property to a cousin. He had been in ill health for almost two years before his death, and his principal beneficiary had stayed the greater part of this time in his house, nursing him and directing the affairs of the household. An aunt of the deceased, who was dissatisfied with an annuity of \$200 given her by the will, contested the validity of the instrument, on the ground that it was not the free and voluntary act of her nephew. The Appellate Division of the Supreme Court, on March 7, rendered a decision in the case in which it was held that, while the evidence was insufficient to warrant a finding by the jury that the execution of the will was not the voluntary and unconstrained act of the testator, yet the previous judgment must be reversed because the attending physician, called as a witness by plaintiff, had not been allowed to state what the deceased's condition was during the month preceding his death. The Court found that the provision of the code which prohibits a physician from disclosing information as to a patient does not apply when waived by the personal representatives of a deceased patient, and that such waiver was made by the plaintiff in calling the medical attendant as a witness.

**BEQUESTS TO HOSPITALS.**—By the will of the late Mrs. Nathaniel Currier, \$5,000 each is left to the Presbyterian Hospital, the New York Society for the Relief of the Ruptured and Crippled, and the "Babies' Ward" of the New York Post-Graduate Hospital.

## ARMY NOTES.

**HEALTH OF THE ARMY IN THE PHILIPPINES.**—The health report from the chief surgeon of the Philippines, just received, covering the month ending Jan. 15, 1902, states that in the department of North Philippines there were 436 sick in quarters, 690 at station hospitals, 288 in department hospitals, 310 in Manila hospitals—a total of 1,724; and in the department of South Philippines 169 were sick in quarters, 242 in station hospitals, 136 in department hospitals, 263 in Manila hospitals—a total of 810. The total sick among the soldiers in the Philippines during the month was 2,534, the strength of the command was 41,116 and the percentage of sick 6.16. This is the lowest sick rate yet attained in the islands, and is very gratifying in view of the arduous nature of the military operations going on in Samar and Batangas. The previous lowest rate—6.79%—was attained in November, 1901. The consolidated sick report of 4 hospitals in Manila and 18 military hospitals in the division gives the following data as to diseases: Typhoid fever 7.33%; malarial fevers, 7.25%; dysentery, 16.7%; diarrhea, 6.91%; other intestinal diseases, 2.41%; gastric disorders, 5.07%; wounds and injuries, 10.48%; venereal disease, 15.54%; tuberculosis, 1.24%; insanity, 2.08%; undetermined, 8.88%; all other diseases, 23.11%. In the hospitals in Manila and the military hospitals outside, the same proportion of cases of typhoid fever were under treatment as during the preceding month, while there was a slight reduction in the amount of malarial fevers. Intestinal and gastric diseases show a considerable reduction, while wounds and injuries are somewhat decreased. There was a considerable decrease in the number of deaths—59, as compared with 77 for the previous month. Of these 59 deaths only 34 were due to disease. Of the 25 deaths due to gunshot or accident, 6 were due to drowning.

**NAVAL RECEIVING SHIPS AS FOCI OF DISEASE.**

In response to a demand from the House of Representatives for the reasons for the discontinuance of the *Vermont* as a receiving ship at the Brooklyn Navy Yard, the Navy Department has transmitted to Congress, in addition to other information, a communication from the acting surgeon-general of the navy with reference to the unsanitary conditions obtaining on these decaying old hulks, and the impossibility of keeping the sick-rate among naval recruits on board of these ships at a satisfactory figure. The surgeon-general states that during the five years prior to the abandonment of the *Vermont* as a receiving ship, the deaths on board amounted to an annual rate of 13.37 per 1,000, while the total death-rate for the entire naval service for the same period,

which embraces the war with Spain, was but 6.49 per 1,000. The death-rate on board of the *Vermont* was thus more than double that for the entire service for all causes. The deaths from disease amounted to 10.50 per 1,000, while those from the same cause in the navy at large amounted to but 4.57. These figures have obtained in spite of the fact that the unhealthfulness of these old wooden receiving ships has long been recognized by naval medical officers, and that unusual care has been taken to prevent the introduction and spread of infectious diseases on board of them. The present system of receiving ships has perpetuated the commissions of old wooden ships, which are saturated with the human emanations of many years, are poorly ventilated, and are undergoing the changes of decay. Medical officers of the navy are strongly of the opinion that such receiving ships should be replaced by the construction of modern barracks, and this view has been adopted by the Navy Department.

**PROPOSED INCREASE IN THE MEDICAL DEPARTMENT OF THE NAVY.**—Surgeon-General Rixey, of the Navy, has recommended an increase of forty medical officers in his corps, the present number of which is inadequate to meet the demands of the service. He recommends that this increase be made by the addition of fifteen surgeons, to be promoted from the passed assistant surgeons and the addition of twenty-five passed assistant surgeons and assistant surgeons to the number now in those grades. He states that the division of the additional number of medical officers between the grades specified is only just and proper, as the senior in the list of past assistant surgeons has been in the service for twelve years. The recommendations of Surgeon-General Rixey have been approved by the Secretary of the Navy, and transmitted by him to Congress.

**EXAMINING BOARD FOR CANDIDATES FOR THE NAVY.**—Surgeon-General Rixey proposes to establish an examining board at San Francisco, for the examination of candidates desirous of entering the medical corps of the navy. At present examinations of such candidates are held only at the Naval Hospital in Brooklyn, but with the considerable increase in the number of naval surgeons which Congress is expected to authorize during the present session, it is thought that a second examining board will be required.

**LAUNDRY AT MANILA.**—A large laundry plant has been installed by the Army Medical Department at Manila, at which all clothing soiled in the large Manila hospitals and the convalescent hospital on Corrigedor Island are now washed. The installation of this laundry has resulted in marked benefit from the sanitary, administrative and economic standpoints.

## Obituary.

## EDWARD MOTT MOORE, M.D.

DR. EDWARD MOTT MOORE, one of the leading physicians of New York State and most eminent citizens of Rochester, died at his home in the latter city on March 4, in the eighty-eighth year of his age. He was born in Rahway, N. J., July 15, 1814, and was of Quaker and Huguenot descent. He received his collegiate education at the Rensselaer Institute at Troy, and was graduated from the Medical Department of the University of Pennsylvania in 1838. He was one of the founders of the New York State Medical Association, and was elected the third president of that society in 1886. He was also prominent in the work of the Red Cross Society of the State. During all his life he was deeply interested in matters affecting the public welfare, and in Rochester he was familiarly known as "The Father of the Parks." Dr. Moore was a man of unusually fine physique and presence, and made a model presiding officer in any assembly in which, as was frequently the case, he was called to take such a position. His professional attainments were comprehensive and of a high order. In addition he was possessed of great general culture, and his genial disposition and rare urbanity of manner no doubt assisted no little in gaining him the exceptional influence which he enjoyed. In many of his characteristics he resembled to a very considerable extent the late Dr. Austin Flint, of whom he was a warm personal friend. His son, Dr. Edward M. Moore, Jr., is also a prominent physician of Rochester.

## ERVIN ALDEN TUCKER, M.D.

DR. ERVIN ALDEN TUCKER of New York, one of the most eminent obstetrical authorities in this country, died from pneumonia, after a brief illness, on March 3. Dr. Tucker was born in Attleboro, Mass., Feb. 2, 1862, and was a graduate of Amherst College. After receiving the degree of M.D. from the College of Physicians and Surgeons, New York, in 1889, he pursued a course of special studies in Berlin, Munich and Paris. When the Sloane Maternity Hospital was opened in connection with the Medical Department of Columbia University he became the permanent resident physician there, and at the same time was appointed instructor in obstetrics in the Medical College. After several years' admirable service he resigned the position in order to go into private practice, and was then made assistant visiting physician to the Sloane Maternity. He devoted his attention to obstetrics alone, being the only physician in New York practising this specialty exclusively, and at once took the highest position as a skilled accoucheur and consultant in midwifery cases. His many fine qualities made him deservedly esteemed in the community, and his untimely death in the prime of his usefulness is deeply deplored.

## CHRISTIAN FENGER, M.D.

DR. CHRISTIAN FENGER, one of the best known surgeons in Chicago, died March 8, at the age of 62. He was born in Copenhagen, Denmark, served as a surgeon in the war between Denmark and Germany, and was an interne in the Royal Friedrichs Hospital, Copenhagen. He was also a surgeon in the Red Cross Ambulance Corps in the Franco-Prussian War, and prosecutor and *Privat docent* at the Copenhagen City Hospital. He went to Egypt as a member of the sanitary council, and was appointed surgeon of the Khalifa district of Cairo. He removed to Chicago in 1887. At his death he held the chair of clinical surgery in Rush Medical College, University of Chicago, and was a fre-

quent contributor to medical literature. The king of Denmark had honored him with a knighthood.

Dr. Fenger's reputation extended far beyond the confines of his adopted home. In his death surgery in America loses one of its most distinguished foreign-born exponents.

## Correspondence.

## CHRISTIAN SCIENCE AND BUDDHISM.

NAVY YARD, PORTSMOUTH, N. H., Feb. 25, 1902.

MR. EDITOR: In *Transactions* of the Asiatic Society of Japan, Vol. XXIX, Part I, is an article by the Rev. D. C. Greene, D.D., of Tokyo, Japan, concerning the *Remmon Kyō Kwai*, one of various sects of old Buddhism. Its manifestations are similar to those of the so-called Christian Science in this country: testimonies of marvelous cures, direct answers to cries for help to their various deities, use of certain phrases—*Ji no Myōhō*—and similar irrational procedures. The incoming of modern science—truth in Nature—however, bids fair to relieve the Greeks of the far East from the incubus of such mental darkness.

Very respectfully,

F. B. STEPHENSON, M.D., U.S.N.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 1, 1902.

CITIES.	Population* Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and group.	Typhoid fever.	Diarrheal diseases.	
New York . .	3,665,852	1,542	510	22.82	18.80	2.46	.39	1.68	
Chicago . .	1,802,828	—	—	—	—	—	—	—	
Philadelphia .	1,249,624	592	176	19.26	20.62	2.20	1.18	.17	
St. Louis . .	603,717	—	—	—	—	—	—	—	
Baltimore . .	525,330	201	43	18.00	22.00	1.50	—	.50	
Cleveland . .	411,826	—	—	—	—	—	—	—	
Buffalo . .	375,742	—	—	—	—	—	—	—	
Pittsburg . .	341,401	174	61	15.52	27.00	1.15	1.72	1.72	
Cincinnati . .	332,032	—	—	—	—	—	—	—	
Milwaukee . .	304,975	—	—	—	—	—	—	—	
Washington .	289,537	—	—	—	—	—	—	—	
Providence . .	185,870	82	21	18.30	21.96	2.44	2.44	3.66	
Boston . .	588,730	219	62	20.52	14.59	2.73	.91	1.82	
Worcester . .	127,337	48	20	10.41	18.75	—	—	—	
Fall River . .	111,872	—	—	—	—	—	—	—	
Lowell . .	99,574	41	18	21.95	17.47	9.75	—	—	
Cambridge . .	96,334	29	9	13.75	6.90	—	—	—	
Lynn . .	71,144	16	2	6.25	39.50	—	—	—	
Lawrence . .	67,275	28	13	21.42	10.71	—	—	7.14	
Springfield .	66,854	22	1	13.62	13.62	—	—	—	
Somerville . .	65,882	21	1	23.80	23.80	—	—	—	
New Bedford .	65,574	24	6	20.80	29.80	4.16	4.16	—	
Holyoke . .	48,065	15	3	39.96	26.64	13.33	6.66	—	
Brookton . .	43,208	15	5	13.33	—	—	—	—	
Haverhill . .	40,392	17	—	11.76	23.52	—	5.88	—	
Salem . .	36,567	12	2	16.67	25.00	8.33	—	—	
Newton . .	36,336	9	2	22.22	11.11	11.11	—	—	
Malden . .	35,390	11	5	9.09	27.27	—	—	—	
Chelsea . .	35,264	14	2	14.28	—	7.14	—	—	
Fitchburg . .	33,348	4	1	—	25.00	—	—	—	
Taunton . .	32,759	13	2	23.10	7.70	—	—	—	
Everett . .	27,114	10	5	10.00	—	—	—	—	
North Adams .	26,583	4	2	75.00	—	25.00	—	—	
Gloucester . .	26,121	7	3	11.30	—	14.30	—	—	
Quincy . .	25,307	6	—	16.67	—	—	—	—	
Waltham . .	24,512	11	2	18.18	18.18	9.09	—	—	
Pittsfield . .	22,311	3	—	66.67	33.33	33.33	—	—	
Brookline . .	21,579	7	—	28.60	—	—	—	—	
Chicopee . .	20,390	1	—	—	—	—	—	—	
Medford . .	20,014	4	2	25.00	25.00	—	—	—	
Newburyport .	14,478	5	1	—	40.00	—	—	—	
Melrose . .	13,384	4	1	25.00	—	—	—	—	

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.



Deaths reported 3,238; under five years of age, 985; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 664, acute lung diseases 620, consumption 333, scarlet fever 42, erysipelas 19, typhoid fever 26, whooping cough 24, cerebrospinal meningitis 10, smallpox 36, measles 50, diarrheal diseases 40.

From whooping cough, New York 14, Philadelphia 6, Baltimore 1, Boston 2, Cambridge 1. From cerebrospinal meningitis, New York 5, Baltimore 1, Boston 1, Worcester 2, Brockton 1. From scarlet fever, New York 33, Philadelphia 2, Baltimore 2, Pittsburg 1, Worcester 1, Springfield 1, Malden 1. From erysipelas, New York 9, Philadelphia 2, Baltimore 4, Providence 1, Boston 2, Everett 1. From smallpox, New York 11, Philadelphia 17, Providence 1, Boston 5, Quincy 1, Revere 1.


Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.


In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending Feb. 15, the death-rate was 22.6. Deaths reported 6,451; acute diseases of the respiratory organs (London) 681, whooping cough 134, diphtheria 76, measles 124, smallpox 60, scarlet fever 52.

The death-rate ranged from 11.7 in Hornsey to 29.9 in Rhondda; London 25.9, West Ham 18.7, Croydon 19.7, Brighton 18.4, Portsmouth 14.1, Southampton 24.2, Bristol 18.2, Birmingham 23.9, Leicester 22.4, Nottingham 23.6, Birkenhead 22.7, Liverpool 26.8, Manchester 24.0, Salford 18.2, Bradford 22.2, Leeds 20.0, Sheffield 16.8, Hull 20.8, Newcastle-on-Tyne 22.6, Cardiff 14.5.

#### METEOROLOGICAL RECORD

For the week ending March 1, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S...23	30.05	26	31	20	54	83	68	N	S E	19	4	C.	C.	1.40 T. 26 1.46
M...24	30.20	34	42	25	94	86	90	S	S W	9	10	O.	C.	
T...25	30.12	36	38	33	91	91	91	N W	N E	1	16	O.	C.	
W...26	29.66	38	40	36	100	100	100	N E	N W	24	16	R.	R.	
T...27	29.83	46	52	40	93	82	88	N	S W	12	10	O.	C.	
F...28	29.86	40	47	34	100	100	100	S E	E	4	20	F.	R.	
S...1	29.70	54	62	45	86	80	83	S W	S W	16	14	C.	C.	
	29.92		45	33			89							3.12

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall.  Mean for week.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MARCH 8, 1902.

D. N. CARPENTER, passed assistant surgeon. Detached from the "Illinois," ordered home and granted sick leave for one month.

DR. W. E. GRIFFITH, appointed assistant surgeon from Feb. 20, 1902.

H. D. WILSON, passed assistant surgeon. Ordered to accompany a detachment of marines, March 8, to the Asiatic Station.

#### SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY.—There will be a meeting of the Section for Clinical Medicine, Pathology and Hygiene in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, March 19, at 8 p.m.

Dr. W. H. Robie will read a paper entitled "Some Considerations of Uremia." Dr. J. L. Morse will read a paper entitled "Notes on the Diagnoses of Diseases of the Kidneys and Bladder in Infancy."

Discussion by Dr. Rotch. Dr. Edward Reynolds will present "Remarks upon some Prevailing Errors in the Diagnosis of Renal Conditions."

H. F. HEWES, M.D., Secretary.

#### ENNO SANDER PRIZE.

THE time limit for submitting the essays on "The Most Practicable Organization for the United States Army in Active Service," in competition for the Enno Sander prize, has been extended to March 31, 1902.

There is much interest in the subject, and the competition promises to be an interesting and active one.

#### RECENT DEATHS.

DR. CONRAD MUND of New York, a younger brother of Dr. Carl Mund, was drowned on March 2, by the capsizing of a sailboat on the Great South Bay, Long Island. He was twenty-eight years of age, and a graduate of the medical department of Columbia University.

DR. ARTHUR T. MUZZY of New York, died at the Presbyterian Hospital in that city on March 4, of cardiac disease. He was born in India, where his father, the Rev. Dr. Clarendon Muzzy, was a missionary, and was fifty-one years of age. He was a specialist in diseases of the eye, ear and throat, and at the time of his death was visiting ophthalmologist to the Isabella Heimath Hospital, New York, Christ Hospital, Jersey City, and St. Mary's Hospital, Hoboken.

#### BOOKS AND PAMPHLETS RECEIVED.

Report of the Kensington Hospital for Women. From Oct. 8, 1900, to Oct. 14, 1901. Illustrated. 1901.

Report of the Commissioner of Education for the Year 1899-1900. Vol. II. Washington: Government Printing Office. 1901.

Compend of General Pathology. By Alfred Edward Thayer, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Summary of the Annual Report of the Library Committee of the College of Physicians of Philadelphia for the Year 1901. Reprint. 1901.

Annual Reports of the President and the Treasurer of Harvard College, 1900-1901. Harvard University, Cambridge, Mass., Jan. 25, 1902.

Animal Experimentation. A Series of Statements Indicating its Value to Biological and Medical Science. Boston: Little, Brown & Co. 1902.

A Manual of Ophthalmoscopy for Students and General Practitioners. By J. E. Jennings, M.D. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Syphilis, a Symposium. By L. Duncan Bulkley, A.M., M.D., Follen Cabot, Jr., M.D., Louis A. Duhring, M.D., and others. New York: E. B. Treat & Co. 1902.

The Social Evil, with Special Reference to Conditions existing in the City of New York. A report prepared under the Direction of the Committee of Fifteen. New York and London: G. P. Putnam's Sons. 1902.

The Sanitary Service of the English Army. By John Stewart Kulp, New York City, Captain Medical Department, U. S. Army; Major and Surgeon of United States Volunteers. Illustrated. Reprint. 1902.

Handbook of Bacteriological Diagnosis for Practitioners, including Instructions for the Clinical Examination of the Blood. By W. D'Este Emery, M.D., B.Sc. (Lond.). Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Outlines of Anatomy, a Guide to the Methodical Study of the Human Body in the Dissecting Room. By Edmund W. Holmes, A.B., M.D. Second edition. Illustrated. Lancaster, Pa.: Press of the New Era Printing Co. 1902.

The Impropriety of Cesarean Section in Placenta Previa, with Remarks on a Rational Method of Treatment. By Hugo Ehrenfest, M.D., of St. Louis, Mo., Consulting Gynecologist to the St. Louis City and Female Hospitals. Reprint. 1902.

Sulphur Dioxide as a Germicidal Agent. By H. D. Geddings, M.D., Passed Assistant Surgeon, Acting Director Hygienic Laboratory, U. S. Marine-Hospital Service, Washington, D. C. Washington: Government Printing Office. 1902.

Transactions of the Obstetrical Society of London. Vol. XLIII, for the year 1901, with a list of Officers, Fellows, etc. Part IV, for October, November and December. Edited by Herbert R. Spencer, M.D., and Alban Doran, F.R.C.S. London. 1901.

Foreign Bodies Accidentally Left in the Abdominal Cavity. With Report of One Hundred and Fifty-Five Cases. By August Schachner, M.D., of Louisville, Ky., Professor of Surgery in the Louisville Medical College. Illustrated. Reprint. 1901.

## Original Articles.

OSTEO-ARTHRITIS OF THE SPINE; SPONDYLITIS DEFORMANS.<sup>1</sup>

(SECOND PAPER.)

BY JOEL E. GOLDTHWAIT, M.D., BOSTON.

THE first paper on this subject was presented by the writer at the meeting of this association held in New York in May, 1899. In that paper the disease was described and a series of well-marked cases reported. The milder cases were purposely excluded because of the question which might arise as to diagnosis, and little was said in regard to prognosis and treatment, as neither point at that time was at all clear. In the time which has elapsed since the presentation of this first paper some of these questions have been settled, so that a later communication seems justified. As the result of this later knowledge it is now possible to recognize the disease at a much earlier stage, at which time its arrest is possible, and the serious degrees of crippling avoidable.

By osteo-arthritis is meant a disease which has commonly been classed with chronic rheumatism, in which, pathologically, there is a marked proliferation of the edges of the articular cartilages, with ultimate ossification of this proliferated portion, together with an ossification of certain portions of the fibrous or ligamentous tissue. The bone adjoining the part in which this change has taken place is not materially altered in its appearance or structure, and in this is in marked contrast to the atrophy which is always present in these structures in the other type of arthritis deformans, designated for convenience "rheumatoid arthritis," and described more carefully in the previous paper and in a paper published by the writer some years ago with the title "The Treatment of Joints Disabled by the so-called Rheumatoid Diseases."<sup>2</sup> The hypertrophied or new formed tissue is made up of cartilage and bone and does not represent a deposit of urates or other such chemical substances, as has been more or less commonly supposed.

The process in the spine always begins, except in the cervical region, upon one side anteriorly, and extends up and down along the anterior lateral ligament. It may remain as a comparatively local process, involving only a small portion of the ligament, as is shown in Fig. 1 and Fig. 2, or it may cross over to the other side and extend up and down until the whole spine is affected. When this occurs the chief deposit or new formation of bone is always on one side, the change in the median line and other side consisting simply of a fusion of the vertebræ, as shown in Fig. 3.

At times, even though the hypertrophic change is quite active, that which develops from adjoining vertebræ does not fuse and a more or less

free joint remains. This is distinctly shown in Fig. 3 and also in Fig. 4, in which an intermediate joint remains mobile (*a*), even though the osseous deposit has been so extensive as to entirely overlap the articulation in front (*b*).

As the disease goes on in the ligaments and cartilages the intervertebral disc may be absorbed before ankylosis takes place. If this be the case naturally the back is rounded and the spine becomes very much arched, as shown in Figs. 5 and 7. If, on the other hand, the process is more active, the vertebræ may become ankylosed before the disc is absorbed, and consequently no deformity is produced. If this be the case, the disc ultimately is replaced by osseous tissue and the ankylosis rendered more complete. The condition is shown in Figs. 4 and 9. If the process is more active on one side than the other, it is easy to see that lateral deformities may result, and naturally this is more commonly seen in the cervical region where the spine has greater flexibility. The condition is well shown in Fig. 6. In the cervical region, the disease is much less constantly confined to one side than in either the dorsal or lumbar region, and this more general distribution of the disease is also shown in Fig. 6.

While these changes are taking place in the anterior portion of the spine, similar changes may take place in the ligaments and articulations more posterior, so that the transverse and, possibly, though rarely, the spinous processes are affected. It is the disease in these regions that causes most of the symptoms of paralysis or disturbed sensation, by narrowing the foramina through which the spinal nerves pass, and as the disease is always more marked upon one side than the other, the presence of these symptoms upon one side and not the other is easily understood.

In the previous paper the cases reported were those in which the disease was very extensive, the whole spine being ankylosed, and they are of interest in this paper largely as showing the extent of the ankylosis which may result and the wide difference in the posture or type of deformity which such a condition may produce. The rounded back, the commonly supposed characteristic attitude, is shown in Fig. 7, but in Fig. 8, with the spine also rigid, there is marked lateral deformity as well, while in Fig. 9 the spine is perfectly straight, and yet in this case the spine was ankylosed from the cervical region to the sacrum.

In the cases reported in this paper nearly all were seen when only a small portion of the spine was affected, and the chief purpose of the paper is to emphasize the importance of early recognition of the disease, knowing that an arrest of the process at this time is almost certain if proper measures are adopted.

**Symptoms.**—In studying the symptoms of the disease upon which a diagnosis is made, while pain, limitation of motion, muscular contractions, referred pains due to pressure upon the nerve roots are common, it is to be remembered that these symptoms may have been present in so

<sup>1</sup> Read before the meeting of the American Orthopedic Association, held at Niagara in June, 1901.

<sup>2</sup> Boston Medical and Surgical Journal, Jan. 28, 1897.

slight a degree as to attract little attention and the disease may be detected in the course of some other examination.

Usually pain and limitation of motion are quite prominent symptoms, and it is for the relief of these that the patient seeks treatment.

The pain varies in character and there are two or three more or less constant types. There may be no pain at the seat of the disease, but the referred pains in the leg, arm or side, depending upon the location of the disease, may be very severe. On the other hand, there may be severe pain at the seat of the disease, and this may be referred directly to the back, or to the anterior part of the spine at the back of the abdomen.

When the pain is referred to the back it may suggest lumbago, and is almost always at first mistaken for this. It is usually worse after periods of rest, and may be somewhat relieved temporarily by stretching or limbering-up exercises, although certain motions are always painful.

The anterior spinal pain is the most severe and usually occurs in paroxysms, being seen only in cases in which the disease is very acute and then frequently after periods of sleep. At this time the muscles which have carefully guarded the part and prevented motion during the day, are relaxed, and in some turn or movement the diseased areas are pressed or pulled upon. As this form of pain is more commonly seen when the disease is in the low dorsal or lumbar regions, it is probable that with the relaxation of the muscles the lumbar spine, not being supported, sags down, or the curve becomes obliterated, and the anterior portions of the bodies of these vertebræ are crowded together. As the disease is on this portion of the vertebræ, the continued pressure leads to reflex muscular contraction, and the patient awakens in a violent paroxysm of pain, followed by stiffening of the other muscles, so that for some minutes he may be "cast," and not until the position of the body is changed is the pain and muscular rigidity relieved. The fact that if the spine is kept normally extended, or at times hyperextended, these paroxysms can be prevented, makes the above theory probable.

The referred pains are due to the pressure of the thickened tissue upon the nerve roots, and as the disease is always more marked upon one side than the other, the pain is one sided, or if there should be pain upon both sides, it comes at different times, that upon one side being associated with the early part of the disease, while that in the other coming much later and representing the gradual extension of the disease to that side. If the pain should be present upon both sides it is always much worse upon one than the other. The pain is referred to the distribution or ends of the nerves, and is not felt along the course of the nerve, as would be the case in neuritis. For this reason there may be definite areas of hyperesthesia, or if the pressure be more severe, it is readily seen that these areas of hyperesthesia may become areas of anesthesia,

and relatively the same thing is true if the motor nerves are pressed upon, and slight impairment of motion or complete paralysis may result.

The pressure upon the nerves is probably due to the hyperemia which surrounds any irritative or inflammatory process, and is not due to the direct pressure of the new formed or thickened bone, as the symptoms are practically always relieved by treatment, which would not be the case if the bone change were the direct cause.

This feature of the referred pains is so common and the real condition so often overlooked, that it is emphasized perhaps out of proportion to the other symptoms. Probably fully half of the cases have pain referred to some part of the body, arm, side or leg, distinctly remote from the seat of the disease, and as in a large proportion of these cases there is no pain at the seat of the disease, the importance of the symptom should be at once realized. After seeing a considerable number of such cases, it has become a fixed rule that the spine should be thoroughly examined at all times, when there has been pain in the leg, side, shoulder or arm, or in which there are areas of numbness or hyperesthesia in the side, arm or leg, the symptoms being wholly or largely upon one side, and where the condition has not been influenced by other treatment.

Frequently the pain, still remote from the seat of the disease, is increased by some movement, such as side bending when the pain is in the leg, coughing or forced inspiration when the process is in the dorsal region, or rotation of the head with cervical disease, and this should always be suggestive of the spinal condition.

The limitation of motion, which is the next most common symptom, is undoubtedly due in part to the osseous deposit and in part to muscular spasm. That which is due to the former is naturally permanent, while that which results from the muscular spasm will disappear as the disease subsides.

As the osseous deposit is more marked upon one side than the other, so also the muscular spasm will show more upon one side, and the result of both of these features is at once apparent in bending forward or to the side. In the forward bending the body may be drawn markedly to one side, the amount increasing the more the motion is forced. In side bending the motion will not only be more free to one side, but the segments of the spine in which the motion is allowed may be different. For example, the motion to the right may be accomplished by bending the lumbar spine, while to the left the lumbar spine may be rigid and the bending occur in the low dorsal region. Backward bending or hyperextension is practically always limited, as would be expected from the strain upon the diseased area which the motion would cause.

In the illustration (Fig. 10) of a case of early disease in the upper lumbar and the low dorsal region, the body is held erect. Forward bending is limited, as is shown in Fig. 11. Bending to the left (Fig. 12) is much restricted and the motion

is seen to be confined to the low lumbar and upper dorsal regions. Bending to the right (Fig. 13) is somewhat more free, and is accomplished by the whole spine.

In the illustration (Fig. 14) of a very acute early case of disease in the lumbar spine (Case III of the series here reported), the best position, and this could be assumed only with support, was as is shown, with the spine inclined to the left. Bending to right (Fig. 15) was performed almost wholly by the dorsal spine, while in bending to the left (Fig. 16) the motion is performed by both the dorsal and lumbar spines, the dorsal being still the more free.

At times, if some peculiar position is taken, the motions from that point are decidedly more free. In one case, when the spine was slightly flexed, flexion and side bendings were not normal, but nevertheless quite free, while with the body erect, the greater restriction of movements was very noticeable. The exact explanation of this is not perfectly clear, but is probably due to the presence of some mass of the new formed osseous tissue which overlaps the other vertebra and which on assuming certain positions impinges less upon the adjoining part, so that freer motions are possible.

The deformity or peculiar attitudes assumed in this disease are due, as is true of the limitation of motion, in part to osseous thickening and in part to muscular spasm, and the attitude is permanent or not in proportion to the predominance of one or the other of these features.

That there is no constant characteristic attitude in the extreme cases has already been shown in this paper (Figs. 7, 8, 9). In the acute or early cases there is usually some lateral deformity on standing, as is shown in Fig. 14. In walking or rising the attitude is often more suggestive than when standing, many of the motions naturally made by one portion of the spine being less perfectly performed by other parts of the spine or the hips and shoulders.

In walking there may be a distinct limp, due to the irritation and contraction of the psoas muscle causing the flexion of the thigh. The attachment of this muscle at the side and front of the spine makes its irritation and contraction easily understood, and because of the one-sided nature of the disease, the contraction would be expected, as it is seen only on one side. This symptom would only be present when the disease is in the low dorsal or lumbar region. This feature was present to a marked degree in the Case Fig. 14, and the contraction, as is at once apparent, was upon the left side.

*Etiology.*—In the first paper, so far as could be determined, all of the cases which had previously been reported were collected and studied. There were thirty-five such cases in this series beside the ten cases of my own which were reported at that time. One of the most apparent features in the analysis was that there was no definitely recognized cause for the disease. Gonorrhea was mentioned in a certain number of instances, but

in a much larger number this was not even suggested as a possibility. Trauma and heredity, together with exposure to wet or cold, were also factors of importance in the minds of the various writers.

All of these are undoubtedly of importance, but no one or all explains satisfactorily the nature and reason for the disease. It is hoped that certain investigations which are now being carried on in the pathology and chemistry of such conditions may result in more definite information.

From the clinical standpoint, the study of the cases suggests that probably, as the result of overwork or some debilitating condition, the metabolism of the body has been carried on imperfectly and that in this condition trauma, a septic or infectious process, exposure or any such allied condition represent exciting causes of a disease which would not have developed but for the state of the general health. It is probably also true that even though there may be an inherited predisposition to some bone or joint lesion of similar nature, this would not have developed had not an injury, overwork or some acute disturbance of the general health represented the exciting cause.

The fact that seemingly slight or simple injuries or that infectious processes not commonly of a serious nature are oftentimes followed by conditions of this type should be borne in mind in making prognoses.

*Treatment.*—The treatment of osteo-arthritis is of more importance than is commonly supposed, and is partly medicinal and partly local and mechanical. An early diagnosis is, of course, of the first importance, as it is at this time that the most can be accomplished. The disease is probably in part a trophic process, and consequently all medicines or methods of treatment which debilitate should be most carefully avoided. This naturally includes the various so-called rheumatic remedies, if they are to be used for any length of time, because of their depressing action, and also the various baths or courses of treatment which tend to lower the vitality. The general treatment should be wholly nourishing and stimulating, care being taken to see that the eliminative functions are ample. Extra diet, stimulating bathing, massage of the unaffected parts, electricity in a mild current, all are of value, and also the dry heat, provided it is not used so often as to be debilitating. For medicines, iron, arsenic and strychnia are the drugs which are of the greatest value, together with the phosphate of soda, the bicarbonate of potash, or such simple remedies as tend to increase the eliminative functions. Cod liver oil and alcohol in medicinal doses are also useful.

The mechanical treatment consists chiefly of some form of support which will limit the motions at the seat of the disease. The disease is apparently aggravated by injury or irritation, and this must be prevented as far as possible. If the symptoms are very acute, complete fixation of the spine is indicated, and this is best accomplished by some form of support which entirely encircles the body. A plaster-of-Paris jacket, or one made

of stiffened leather, are the most practical. Simple recumbency is not enough, as considerable motion of the spine is still possible, and as the normal curves of the spine are not supported. Not only is the pain not relieved by such procedure, but frequently it is increased owing to the crowding together of the anterior portions of the vertebræ, the region of disease, as the lumbar curve relaxes. When the body is prone, the muscles and ligaments relax, especially during sleep, and the curves of the spine which are present when the body is erect disappear in both the dorsal and lumbar regions.

In the former the anterior concavity becomes less concave, and the anterior portions of the bodies of the vertebræ are drawn apart, while in the latter, or lumbar curve, the anterior convexity becomes less convex and the anterior portions of the bodies of the vertebræ are crowded together. Either condition may cause pain, which will be worse after sleep when the muscles have been most relaxed. The jacket, if it is to be successful, must fit the figure so perfectly that these changes in the curves of the spine can not take place. If for any reason a jacket or fixed support cannot be worn, the patient should be kept recumbent, with pads or firm pillows adjusted so that all parts of the spine are supported.

In case a jacket is to be used, it can best be applied with the patient standing and assuming the most erect position possible without pain. Suspension, forced hyperextension, or any other method of correction of the position is not indicated, as they would all produce strain or pressure at the diseased areas. The jacket, if applied for disease in the lumbar or lower half of the dorsal region, should extend from the top of the trochanters to the axillæ.

If there is much deformity, either lateral or anteroposterior, the jackets should be reapplied every one or two weeks until this has been corrected as much as possible. The fixation, by protecting the diseased area from irritation, allows the reflex muscular contractions to subside, and as this takes place the posture becomes more natural. In cases of short duration, three or four weeks is usually enough for the best position to be reached.

In the acute or severe cases a fixed support, such as the jacket, is usually necessary for three or four months, while for the subacute or mild cases, or for the acute cases during the convalescent period, a support as rigid as a jacket is not necessary, and a light brace with uprights in the back made of spring steel, or a corset made of heavy webbing reinforced with flexible steels, will probably be sufficient. At times, strapping the back with adhesive plaster is helpful, or a swathe pinned tightly about the body may give relief.

Local warmth is always agreeable, and a layer of rubber or flannel across the back inside of the support is a simple way of producing this effect. Beside the warmth, the increased vascularity which the rubber produces relieves some of the muscular contraction.

In order to illustrate the different types of the disease as they behave under treatment, the following cases are reported:

CASE I. E. B., 42 years of age, and a seaman by occupation, came to the Carney Hospital in January, 1901, giving the following history:

Having previously been well, a few months ago he began to have pain across the chest, and occasionally shooting down into the left leg. The pain in the chest had grown worse, and for the two or three months previous to his first visit to the hospital he had been unable to sleep lying down. He had worked with great difficulty until three weeks before he was first seen. He gave up because of the pain. Medical treatment which he had received had given him no relief.

At the time of the first examination at the hospital he showed good muscular development and stood erect. All motions of the spine were made very guardedly. On attempting forward bending, the body was drawn to the right. Respiration was very difficult because of pain, and was made by short, quick breaths, chiefly diaphragmatic, the thorax moving but little. The grunting character was quite marked.

There was no paralysis, and nothing to indicate cord or nerve root pressure, except an occasional shooting pain in the leg.

A diagnosis of osteo-arthritis, involving the dorsal region of the spine, with involvement of the costovertebral articulations, was made, and a plaster-of-Paris jacket was applied. Five days later the patient was seen again, giving the report that except for some irritation from the upper edge of the jacket he had been perfectly well since it was applied. At this time the breathing was quiet, the grunting character having entirely disappeared, and the pain was entirely relieved. The jacket was trimmed, but not removed. After this the recovery was uneventful; the jacket was continued for a month or six weeks and then removed. The respiratory movement improved very markedly; the extreme limitation seen at the first examination being due to the acuteness of the process, which was arrested before the permanent osseous changes had taken place.

CASE II. G. W. E., a man 38 years of age, was first seen by me Jan. 28, 1900. For many years he had been closely confined at clerical work, and fourteen years before he had what was termed "heart exhaustion," making an invalid of him for some time.

For six or seven years previous to the time of his first visit he had had "rheumatism." Different parts of the body had been affected, but in no one place had it remained until a year before, when it settled in the right shoulder and has continued there ever since. The pain has gradually extended to the spine, and recently to the left arm and leg. During this period there had been a loss of thirty pounds in weight. The family history was negative as to "rheumatism" and tuberculosis. He had had many forms of treatment without relief and with a gradual extension of the process.

At the time of the examination there was considerable emaciation, with much nervous depression. The spine throughout was rigid, the most active disease being in the cervical and low lumbar regions. The hip joints were free, and from the character of the pain in the leg it was undoubtedly due to pressure upon the nerve roots. This was also true of the pain in the left arm. The right arm was paralyzed; there was much atrophy and voluntary motions were impossible. The joints of the arm, except the shoulder, which was slightly involved, were not affected, the lack of function being due apparently to the pressure upon the nerve roots.

For treatment the patient was fitted with a leather jacket and a Thomas collar, so that the whole spine was supported, and beside this he was kept in bed for more complete rest of the affected areas. Tonics were also given, together with forced diet and good general hygiene. The bed treatment was continued



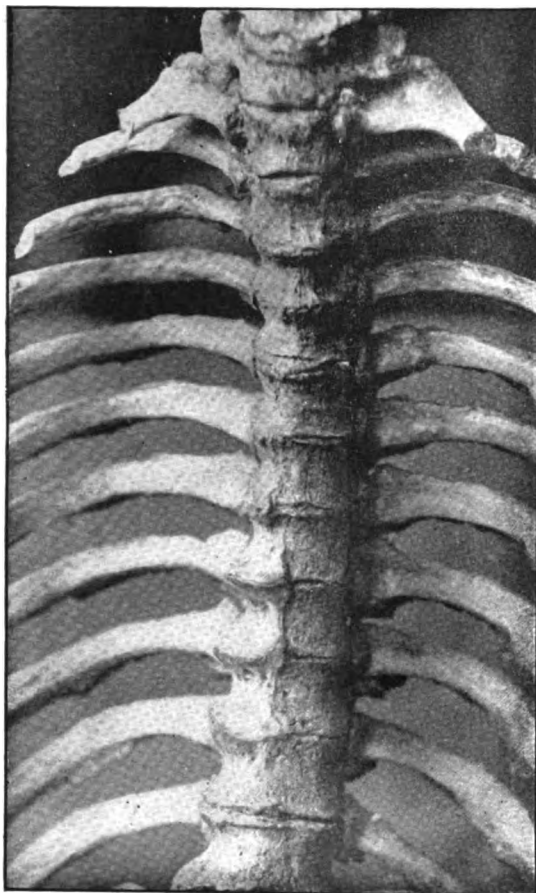


FIG. 1.



FIG. 3.



FIG. 2.

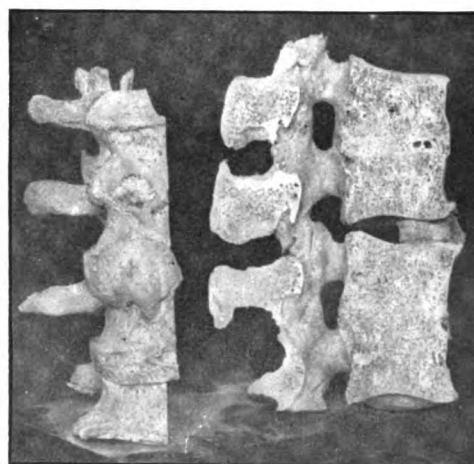


FIG. 4.

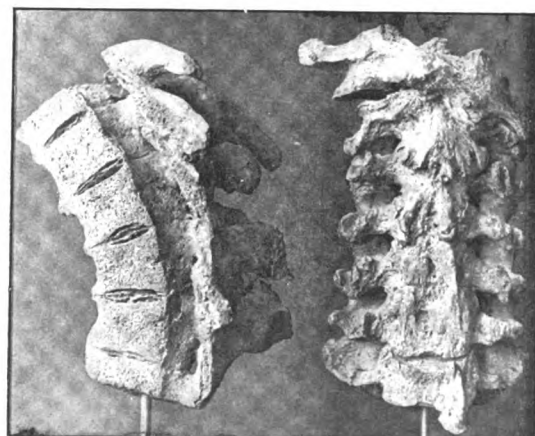


FIG. 5.

FIG. 6.



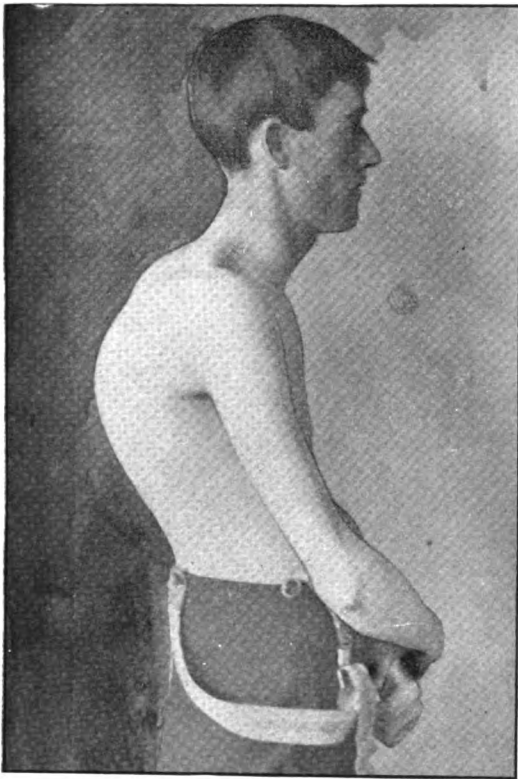


FIG. 7.

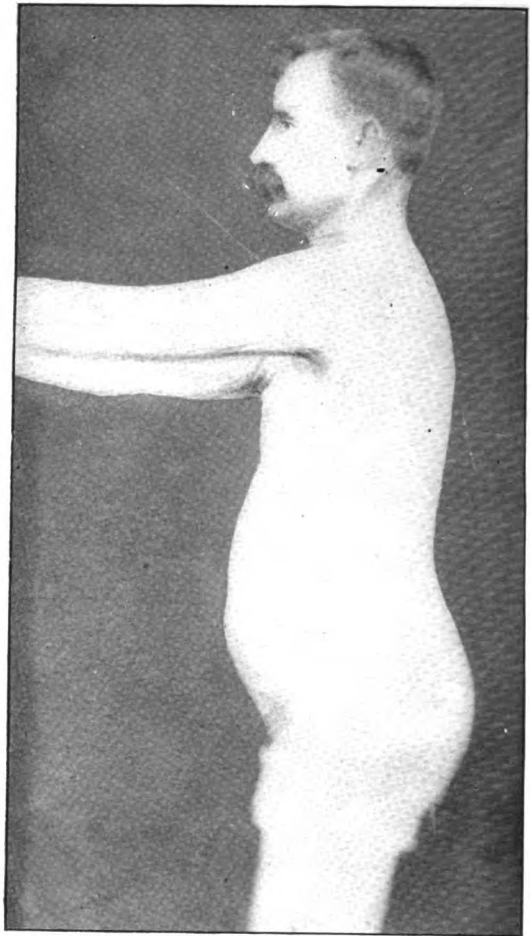


FIG. 9.



FIG. 8.

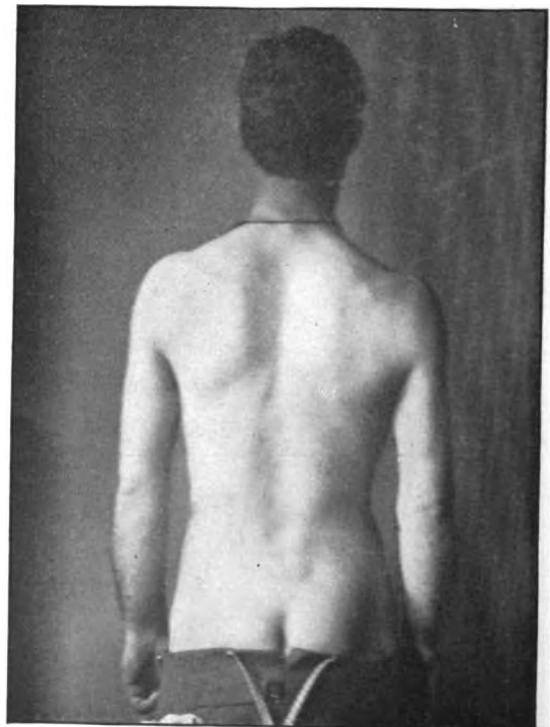


FIG. 10. a.

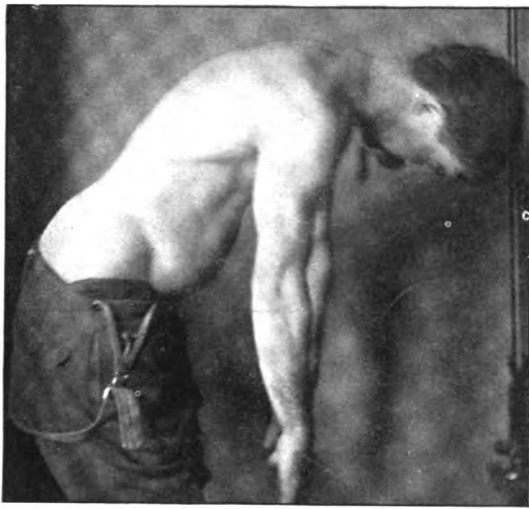


FIG. 11. a.

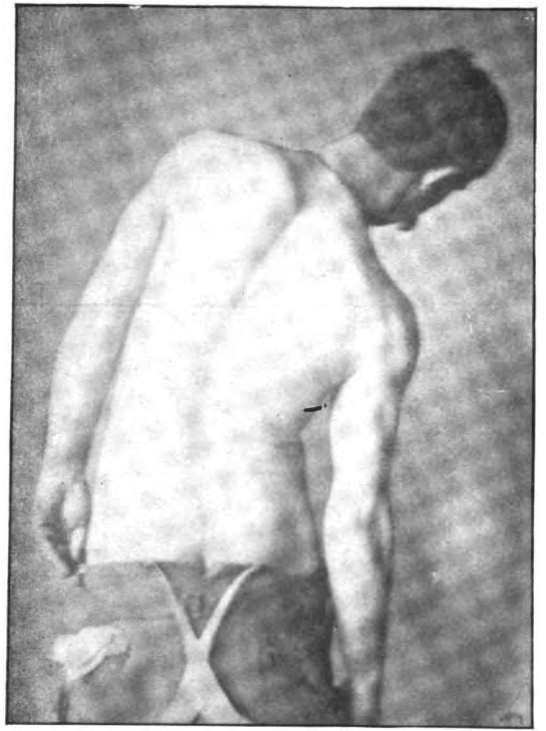


FIG. 13. a.

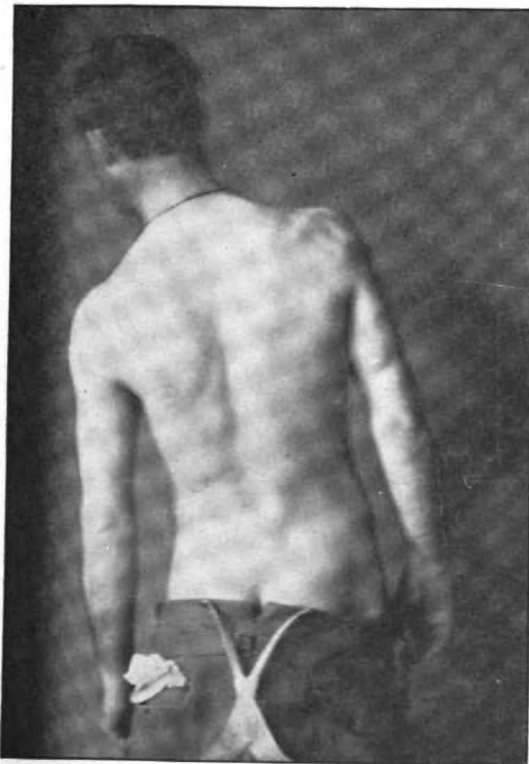


FIG. 12. a.

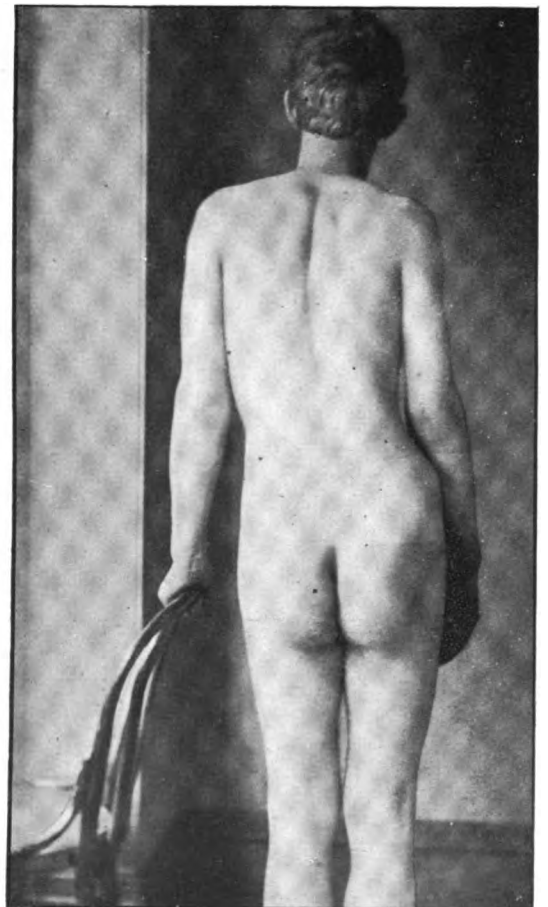


FIG. 14. b.

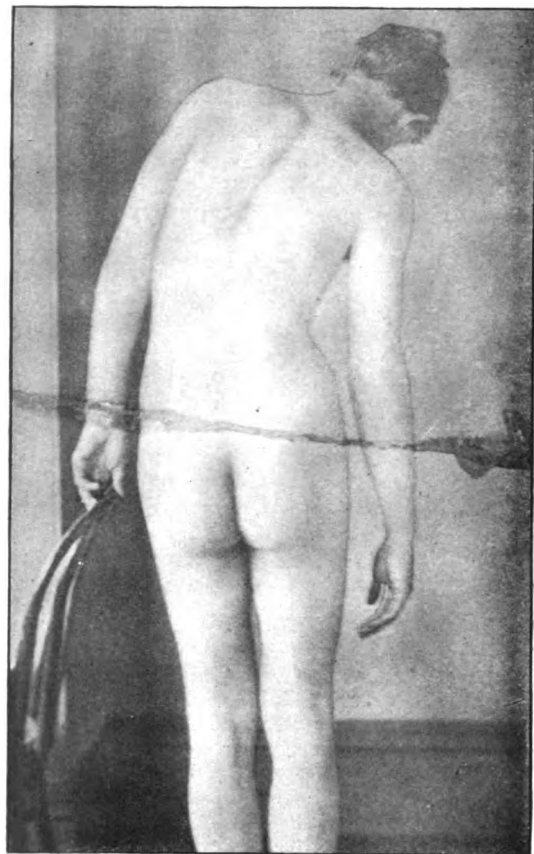


FIG. 15. b.

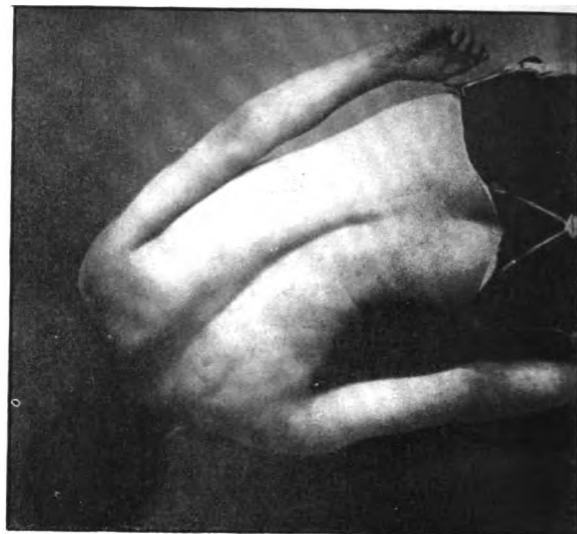


FIG. 19. b.

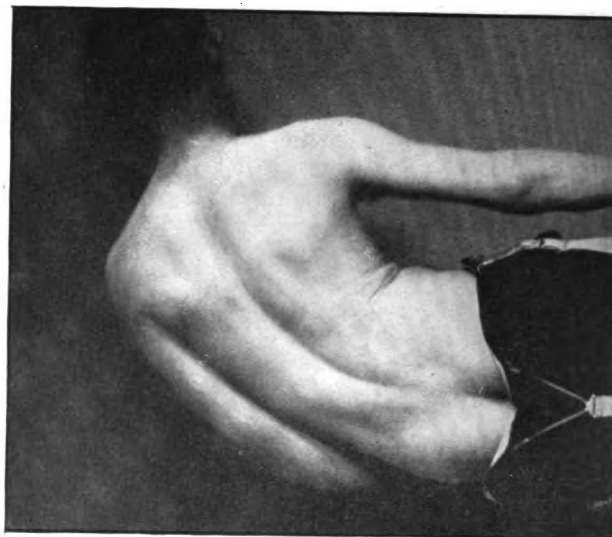


FIG. 18. b.

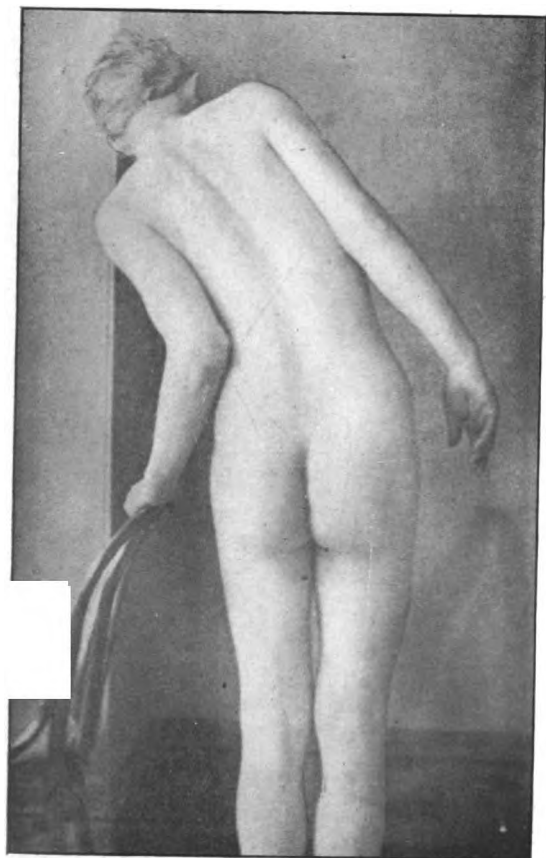


FIG. 16. b.

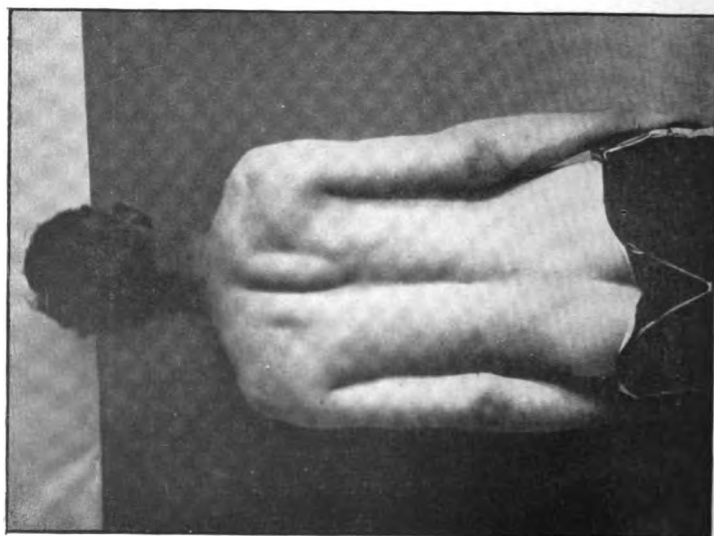


FIG. 17. b.

for about two months, soon after which the patient was sent South, where he remained, living out of doors, until the summer, when he came North, living in the country most of the time, out of doors until the fall. During this time, covering seven months, he steadily improved; the pain in the leg and lower back disappeared first, then the pain in the neck, and gradually the strength in the right arm returned, until at the end of about six months the use was normal. The jacket was worn for about seven months, after which a light spring steel brace was substituted, and this was worn for a few weeks longer.

Since then the patient has been well except for the restriction of motion in the spine, and able to lead an active life. There has been no return of the so-called "rheumatism," and the gain in weight is quite marked.

CASE III. Mr. E. W. L., 24 years of age, a hospital attendant by occupation, was first seen in February, 1900. The history given was that three months before pain came on rather suddenly in the back of the left thigh. There was no known injury or apparent cause. He had played football a good deal, but was not conscious of injury. The pain gradually increased and with the increase a gradual inability to make certain movements involving bending of the spine developed. To pick up objects or to lace his shoes had become impossible.

At the time of the examination he was in extreme pain, all referred to the left leg. Standing erect without support was almost impossible, and in the best position the body inclined to the left. On bending forward the body was drawn to one side. The lateral bending was more free to the left than to the right. There was much spasm of the spinal muscles. The motions at the hips were free, except hyperextension in the left, which was limited by the Psoas contraction.

For treatment a plaster-of-Paris jacket was applied, tonics given, and the patient sent to his home in the country. The jacket was worn for about three months, after which there was practically no pain, and in the fall of that year the patient returned to his work and has remained well since.

Figs. 14, 15 and 16 illustrate the condition previous to the treatment. The condition today is shown in the illustrations (Figs. 17, 18 and 19). The body is erect and there is almost no permanent restriction of motion. On bending to the right (Fig. 18) it will be seen that the motion in the low lumbar spine is a little less free than on bending to the left (Fig. 19).

CASE IV. P. S., a man 32 years of age, was first seen Feb. 6, 1900. The history as given was of a marked family tendency to rheumatism. The patient had been well until four years previously when he had an attack of "rheumatism" in the back. At times since there have been other mild attacks, with occasional pains in hips and arms. For four weeks previous to the time of the examination there had been an unusually severe attack with pain in the back between the shoulders and extending up into the neck. The pain was worse after resting. At the time of the examination the spine was straight. There was free respiration. The spine was carefully guarded by muscular spasm, almost no motion being allowed.

No relief followed external applications or internal medication. A leather jacket was finally applied, and later on a spring steel brace was substituted. There was gradual improvement until the summer, when the apparatus was discarded by the patient, and much active exercise, such as diving, boating and horseback riding, undertaken. This was followed in a few weeks by an unusually acute attack which was relieved only after two or three months of fixation in a leather jacket, the patient at the same time being kept in bed. During this period some pain was almost constant, while the paroxysmal pains which usually came on after sleep were more severe than one is often called upon to witness. These sudden violent pains were referred to the back of the abdomen and extending into the loin.

The symptoms gradually improved, so that at the end of some months the jacket was omitted, and a spring steel back brace applied in its place. This was worn for about three months, and a webbing belt to give some support to the abdomen and lumbar spine was substituted. This is still being worn. The pain has entirely ceased, and the motions are much more free.

CASE V. H. D., a physician, 45 years of age, was seen in July, 1901. There was the following history: About ten years previously, after exposure of the back to a draft, he had an attack of "sciatica" in the left leg. At that time he was laid up for six weeks. Three years ago there was another attack of pain in the left leg, and at that time also in the back. The body was drawn to one side, and the whole attack lasted nine months. The present attack began nine months ago with severe pains in the left leg and with "cramps" in the back. The pain in the leg was referred to the distribution of the cutaneous nerves. No treatment had given relief.

At the time of the examination the body was inclined forward. From this position forward bending was quite free. Side bending was much limited, especially to the left, while backward bending was impossible, except after certain rotary motions, when something would slip and a more erect position could be assumed. From this new position, however, forward bending was much less free than it had been in the first position, and in the attempt to bend forward the pain in the leg was increased. Motions in the hips were free.

For treatment a leather jacket was applied, with marked relief to the pain in the leg within a few days. Under this fixation the position of the spine improved, so that at the end of about two weeks it was necessary to mould over the jacket to the new position, and this has been necessary once since. As the condition improved so that the spine could assume a better position the jacket felt less comfortable and there was more pain, which was relieved by remodeling the jacket.

*Prognosis.*—The prognosis of osteo-arthritis must be considered with reference to both the immediate and the ultimate result.

The immediate result is definitely known. Without treatment there is, in the majority of cases, a gradual extension of the disease due to the continued irritation from motion, until the discomfort is so great that the patient is obliged to give up and go to bed. Under the imperfect rest which this represents, the process gradually, after a long period, quiets down and the patient is about again, well, except for the stiffness in the region of the spine involved. The duration of the disease and the completeness of the recovery is determined in a large degree by the general hygienic influences with which the patient is surrounded, and if these are particularly unfavorable, not infrequently there is a gradual extension of the disease to the other joints, with great crippling as the result.

In a certain number of cases the disease is so mild that the muscles alone are able to protect the part, and recovery takes place with but little to show for it except some slight restriction of motion, until some exposure, injury or debilitated condition is followed by another and more severe attack. There may be intervals of months between these attacks, or even years, the general health as well as the extent of the original process largely determining the frequency.

With treatment, even the most severe attack is shortened very materially and the extension of

the disease which would result if the irritation were not relieved, is prevented. In the first stages of the disease, even though the pain may be very intense, the relief given by the support is usually apparent within a very few days, while in some instances the relief is almost instantaneous. If the disease has been present for some time so that already considerable bone thickening has taken place, the relief will not be apparent so soon, and several weeks of fixation may be required before the pain disappears. As this ceases the muscular contraction also subsides, so that the rigidity which was due to this disappears. The return of motion is so complete at times in the early acute cases that the traces of the disease are only detected by the most careful examination. This is extremely well shown in the series of photographs (Figs. 14, 15, 16, 17, 18, 19).

The ultimate result of this disease can only be determined by many years of observation with the same individuals, so that positive opinions at this time are impossible. It seems fair, however, as some of the patients have been under observation for several years, to attempt to draw conclusions, even though some of the conclusions may need to be changed later.

Apparently after the attack is once over and has been thoroughly treated, unless there is some accident, injuring the affected part, or some debilitating condition, such as acute general illness, overwork, or great mental strain or worry, the patient remains well.

The debilitating influences, overwork, etc., are followed at times by a return of the trouble in the spine, probably for the same reason as any other weak part might become apparent, when if reasonable general health had been maintained none of these weak parts would have needed attention. In giving a prognosis this should be borne in mind, and should any such condition develop, the treatment is not unlike that which was used, or would have been used, for the original attack. The cause should be removed and the region affected immobilized.

An indirect factor which must be borne in mind in the prognosis is the effect upon the lungs of the limitation of the respiratory movement due to the ankylosis of the ribs to the spine. Two patients have been seen with pulmonary tuberculosis, this having developed after the thoracic movements had been restricted. The development of such a disease is not hard to understand, if the theory is correct that the imperfect expansion of the lung tissue is a large contributing factor to the development of tuberculosis.

To indicate the possible results and the permanency of the results, perhaps the first case of the series reported in the former paper upon this subject, is the best illustration because it was an extremely severe type of the disease, and because the patient has been for the longest time under observation.

The patient, a woman 58 years of age, was seen by me in July, 1893, with a very active osteo-arthritis process in the cervical spine. The

disease was so acute and extensive that both arms were paralyzed, due to the pressure upon the nerve roots. After six months of careful treatment the patient was well except for the stiffness of the region of the spine involved. Since then the patient has been seen or heard from at intervals, and there has been no return of the symptoms, although her life has been an active one.

With the other cases, a shorter time has elapsed since the treatment was begun, but so far as my memory serves me, in no case has there been a genuine relapse. In several cases, while the active treatment was being carried on there has been an acute exacerbation of the symptoms, but not after the disease has once thoroughly been arrested.

It seems to me that we can say with definiteness that the disease is a local one, influenced or caused perhaps by general conditions, but that it can be corrected, the pain relieved, and the patient made, for all practical purposes, well.

#### PRIVILEGED MEDICAL COMMUNICATIONS: A REJOINDER.

BY DAVID W. CHEEVER, M.D., LL.D., BOSTON.

At the Councillors' meeting of the Massachusetts Medical Society, on Oct. 2, 1901, I presented a paper on "Privileged Medical Communications," requesting its reference to the Committee on Medical Legislation. It was so referred, and I am informed that this committee has the subject under consideration.

On Oct. 17, 1901, this paper was published in the *Boston Medical and Surgical Journal*. On Jan. 2, 1902, the *Boston Medical and Surgical Journal* published a reply to my paper. The present paper, written Feb. 25, 1902, is intended as a rejoinder, and is published, by my request, in the *Journal*, hoping it may meet the eyes of the committee as well as the public. The article which I have termed the reply contains errors of sentiment; the original article contains errors of fact. I desire to correct the latter, and to point out the former; and then to briefly reconsider the whole matter.

The law of Massachusetts, to quote an authority, says on "Privileged Communications": "Neither is protection extended to medical persons in regard to information they have acquired confidentially, by attending in their professional characters."<sup>1</sup> Thus "by the common law of Massachusetts the physician is obliged to state publicly, on the witness stand, whatever may have been told him by his patient, even although involving character or family secrets." This latter is my statement and I can stand by it as correct. But in a succeeding paragraph I imply that the law of England protects the physician. This is not true. The common law of England is like that of Massachusetts. "No practitioner [in England] can claim exemption from answering because his answer

<sup>1</sup> Greenleaf on Evidence, 1896, 1, 248.



would violate secrecy or implicate the character of a patient. This is the law; and however it may be defended on legal grounds, we hope there are not a few medical men who would prefer to sacrifice their personal liberty to their honor."<sup>2</sup>

"These are no medical secrets. A professional man who claims a privilege, where none is allowed, sets himself above the law."<sup>3</sup>

This cancels the errors of fact. I now speak of my critic's errors of sentiment, or opinion. He says: "This appeal will impress the careful reader, first of all, as novel, in that this proposed legislative action is invoked in behalf of physicians; whereas, all similar legislation elsewhere has been framed ostensibly on grounds of public policy." He then terms this "class legislation," etc.

This is an error. Whom does the physician seek to protect? His patient and his patient's secrets, his patient's family, the *morale* and the honor of society. This, first of all; secondarily, the physician seeks to protect his own conscience and heart and honor, again for his patient's sake. There is no class legislation in this. "The privilege is solely for the patient's protection." "He, or his representatives, may waive their rights of privacy, when the doctor may speak." "As to the doctor, he is to regard all knowledge as to his patient's affairs as sacred, and refuse to testify except at the request of the patient, or under the direct order of the court, and even when commanded to testify he should feel his way cautiously," etc. "The rule of [English] common law has been pronounced 'harsh in itself, of questionable policy, and at variance with the practice of France and some of the United States of America.'"<sup>4</sup>

Again, as to matters of opinion, my critic says (quoting me): "We instinctively, as physicians, can recognize but one side, the sacredness of professional secrets." Then he goes on to speak as follows: "Seventy-five years ago this censure may have been largely merited; but with improved educational methods there has been developed physicians of different type, with faculties trained to accurate observation, and the cultivation of a judicial temper, combined with a delicate perception of personal honor."

We suppose this refers to expert testimony. It is a matter of opinion whether expert testimony is more valued in court today than the statement of the general practitioner. We claim for the old-fashioned doctor as much sense of honor, and less of the commercial spirit, than the modern expert.

Returning to the main subject, we have quoted the statutes of New York as prohibiting the revelation of professional confidences. "The New York law has not proved an unalloyed benefit, and has been successively modified in 1891, 1892 and 1893. It excludes testimony as to mental condition; as to drunkenness; as to life insur-

ance; as to cause of death; it has met with much criticism, but it is for the legislature to correct this."<sup>5</sup>

We think this goes too far, and, as we see, in one respect, has been modified:

"In an action for damages for a personal injury the testimony of a surgeon of a hospital may be taken before a referee."

In insanity also another line may be drawn:

"Information afforded by a sane patient, for the better understanding or treatment of his malady, to a medical man, is sacred."<sup>6</sup>

Again, it is claimed that the physician may lose his safeguard for his defense in malpractice suits, if not allowed to testify. This can be corrected, as follows: "In Indiana it has been held that when the patient testifies in an action for malpractice against his physician, the physician is then at liberty to testify, or to introduce other witnesses to testify, concerning the matter in controversy."<sup>7</sup>

We admit that the laws are in an unsatisfactory state. The Roman law extended a privilege to physicians.<sup>8</sup> The French penal code forbids revelations. The English common law compels the physician to testify. The law of Massachusetts also. New York prohibits revelations. The United States are now about evenly divided; some twenty-four states and territories following the New York law, and about twenty-five the Massachusetts law. The United States Courts follow the state's law unless in criminal cases.

Some of your readers may recall the Fisher case, in which the writer took some part, here in Boston, and which led, by its exposure of the abuses of the coroner system, to the legal establishment of the medical examiners. The case turned on a question of the evidences of pregnancy in an innocent girl.

About six years ago in London the Playfair case disturbed the moral sense of the community. Whether or not physicians should testify as to matters of a private nature, in open court, was a question warmly debated. The *Lancet*, May 9, 1896, p. 1292, sums up fairly as follows: "Never was the question of professional etiquette more forcibly presented. There is no written code to guide a practitioner. There are [things]<sup>9</sup> which it would be subversive to every moral rule to divulge; there are those which it is his bounden duty to disclose. It is a safe formula that, unless there are overpowering reasons to the contrary, a patient's secret should be held inviolable by his medical adviser, almost if not quite as binding as the confessional of the Roman Catholic Church. When it involves the actual commission of crime, morality and justice require the breaking of a confidence," etc.

The judges in the Playfair case did not say they would always commit the physician for contempt, if he refused to answer, but favored the

<sup>2</sup> Tidy, on Legal Medicine, quoted in Taylor, p. 41. The brackets are ours.

<sup>3</sup> Taylor: Medical Jurisprudence, twelfth American edition, New York, 1897.

<sup>4</sup> Best on Evidence, p. 582; Hamilton and Godkin, New York, 1894, pp. 626, 626. The brackets are ours.

<sup>5</sup> Witthaus and Becker, 1, 134.

<sup>6</sup> Journal of Mental Science, April, 1897.

<sup>7</sup> Witthaus and Becker, 1894, 1, 133.

<sup>8</sup> Tidy, p. 41.

<sup>9</sup> The brackets are ours.



honorable retention of professional secrecy, distinctly. "The safer rule for the physician is never, under any circumstances, to reveal the confidence of his patient, and to preserve inviolate every secret obtained in the course of his professional practice." "Let the consequences take care of themselves. The court will honor, rather than punish, such action,"<sup>10</sup> etc.

Now the Massachusetts law says to the physician, "You must tell," but professional opinion adds, "You ought not to."

The doctor in the court of law is in a cruel and false position. If an honorable man, false in proportion to his sense of honor. Some would go to prison rather than betray a confidence; some would consider the law absolved them.

The law should recognize the rights of the patient, the duties of the medical man, but also the justice due the community. "*Salus populi suprema lex.*"

How can these difficulties be reconciled? Perhaps by a modification of the statute of New York. We propose the following for consideration:

It shall be considered unprofessional and improper for a physician to divulge anything confided to him by a patient, unless:

- (1) With the patient's consent.
- (2) To defend himself when accused.
- (3) To expose crime.

(4) In all other cases such professional confidences shall be classed as "privileged communications." It shall be a question of honor whether the physician shall ever feel it his duty to repeat such a "privileged communication": if he conscientiously declines, he shall be protected; if he conscientiously testifies, it shall be before the judge or referee only, in private; and no such revelation shall be published.

#### CASES OF EXTRA-UTERINE PREGNANCY ILLUSTRATING DIFFICULTIES IN THE DIAGNOSIS OF THE CONDITION.<sup>1</sup>

BY EDWARD REYNOLDS, M.D., BOSTON.

ON looking over the cases of ectopic gestation which I have seen during the past year, I find six in which the conditions found before operation were so far obscure as to be fairly representative of the difficulties often met with in the diagnosis of this condition, and as they illustrate nothing else than this single point, submit them without further comment. All of them made good convalescences.

CASE I. Seen with Dr. E. T. Twitchell, on Nov. 4, 1901. Mrs. P., 21 years old. Has been married one year. Became pregnant shortly after marriage, and was confident that she was in that condition before missing her period. Was delivered in July, 1901. Had normal periods in Au-

gust and September, and ten days before the succeeding (October) period again thought herself pregnant. The period, however, appeared in due time, but was painful for almost the first time in her experience. She dismissed the idea of pregnancy, but a fortnight later again experienced the peculiar sensations which she associates with pregnancy, and was again confident that she was in that condition. In the last week of October, lancinating abdominal pains appeared, referred to the umbilicus, and persisted at intervals until I saw her. After three days of these pains, each attack was followed by slight, pale blood stains appearing per vagina.

In the evening of Nov. 3 she was seen by Dr. Twitchell, with an unusually sharp attack of pain, attended by a chill, apparently of nervous origin. The pulse was 100, the temperature 99°. There was slight tenderness in the left iliac region. Under a small dose of morphia she slept, but woke in the morning with less severe stabbing pains in the same left iliac region, and still attended by slight occasional bloody flow from the vagina. Her pulse when I reached her was 80, color good, abdomen hardly rigid, some tenderness in left iliac fossa. On vaginal examination, the uterus appeared to lie in the first degree of retroversion; there was a slight soft resistance over the left broad ligament region, with little or no tenderness, certainly none on the right side. No tympanitis. The pain was less than a few hours before. I thought, with Dr. Twitchell, that it was a probable extra-uterine pregnancy, but that, if it were so, it was unruptured, there was no immediately urgent indication for operation, and her country home was too far from his office to make it wise to operate there. We accordingly recommended that she be removed to a private hospital, and there kept under observation for a few days, unless further symptoms developed. She entered St. Margaret's Hospital that afternoon, and was very comfortable until the next morning, when she had a little more pain, coupled with the appearance of rigidity of the abdominal muscles over the left iliac fossa and considerable tenderness there. These symptoms decided me to open the abdomen at once.

In reviewing the diagnostic features of this case, we see that the patient thought herself pregnant by comparison with her previous experience, but shortly afterward had a period which varied from the normal only in the existence of pain, which was unusual. She still felt the sensations of pregnancy, and when presumably four weeks along (too soon for the physical signs of pregnancy to be perceptible) was attacked by the characteristic pains of an extra-uterine gestation, which were moreover accompanied by the strongly diagnostic point of slight uterine flowing. Vaginal examination distinctly referred the trouble to the left side, but was otherwise inconclusive. The appearance of localized abdominal rigidity and increased tenderness made me feel that the risk of operation was much less than the possible risks of a continuance of the condition.

<sup>10</sup> Taylor's Medical Jurisprudence, edition of 1897, p. 43.

<sup>1</sup> Read before the Obstetrical Society of Boston, Dec. 17, 1901.

On opening the abdomen, I found a small movable uterus in a little more than the first degree of retroversion, with a normal left tube and ovary lying under it, the tube sharply flexed upon itself and much engorged with blood, the mucous membrane of the fimbriated extremity swollen, slightly everted, and just adhering to the parietal peritoneum against which it lay, the adhesion being so slight as to be swept away at the first pressure of the finger. The pelvic peritoneum, generally, was injected and had slightly lost its glisten, the same being true of the coils of intestine which presented into it. The right tube and ovary were normal; the appendix had been removed at a previous operation. On raising the uterus to its normal position, the tube rose with it, and with this change of position the much engorged condition promptly disappeared. It was not thickened or inflamed. The uterus was ventrosuspended, the whole operation occupying but a few minutes. The patient had no more pain, recovered from ether without nausea or thirst, never suffered any more discomfort, and returned to her home in three weeks. There was no sign whatever of an ectopic pregnancy.

CASE II. Mrs. S. Seen with Dr. S. A. Houghton of Brookline, on Feb. 25, 1901. An unusually strong, well woman. She was 37 years old. Fourteen years married. Two children, one miscarriage. The last pregnancy seven years ago. Periods always regular to exactly thirty-five days, no pain whatsoever. No previous illnesses or ill health. For the last year the periods, though regular, have been beginning hesitatingly, but lasting as usual, one week; the December period, however, lasted ten days, intermittent and dribbling. The next period occurred after an interval of six weeks and was again slightly prolonged, though not profuse. Early in the winter she was awakened in the night by a sharp bearing down pain in the rectum, and for the week before I saw her had been troubled by diarrhea, accompanied by tenesmic rectal pains radiating into the abdomen and left side. She had been conscious through the winter of a pain in the perineal region on jumping, running or sitting on a hard seat.

She consulted Dr. Houghton for her diarrhea and incidentally mentioned the slight peculiarity of menstruation as something which had never occurred before. He, being fully impressed with the belief that any increase in menstrual flow in a woman approaching forty is worth investigating, made a vaginal examination, and finding a large, soft cervix, sent her to me. I felt sure that the cervix was not malignant, but finding a slight tenderness behind the cervix recommended the vaginal use of glycerin for a fortnight and a second examination.

At her second visit there was much less tenderness or pelvic resistance, and I was able to make out an ill-defined mass in Douglas' fossa, which I took to be either the fundus of a retroverted uterus or a new growth pressing on the rectum, thus explaining the rectal tenesmus. Believing

that the appearance of a sensitive mass unattended by symptoms in a perfectly well woman was strongly suggestive of a new growth, I advised an examination under ether with permission to do whatever might be found necessary. This being acceded to, I etherized the patient a few days afterwards, and on examination found a uniformly rounded mass of about the size of a hen's egg, lying behind the uterus, apparently an ovarian cyst. I therefore opened the abdomen.

In reviewing the diagnosis, we see that this patient presented no sign of pregnancy, had had no amenorrhea, no more alteration of the catamenia than is habitual with many women, and had had no pain except rectal tenesmus accompanied by diarrhea, and evidently symptomatic of pressure on the rectum from the new growth.

Yet, on opening the abdomen, the only abnormality was an extra-uterine gestation of the size of a hen's egg in Douglas' fossa. It was free from adhesions and was evidently on the point of rupture. Dr. Whitney's report on the specimen is appended:

"Microscopic examination showed the presence of chorion villi in the mass which filled the tube. I have been unable, however, to find any trace of an embryo, so it is possible that it may be some months since the impregnation has taken place, and it is to be regarded in the nature of a retained tubal abortion. The villi would correspond to those of perhaps about two to three months, and this is the only indication as to the length of time the pregnancy was active."

CASE III. J. F. was admitted to my wards in the Boston City Hospital Sept. 20, 1901. Twenty-seven years old. Ten years married. No children or miscarriages. Menstruation regular until four weeks before entrance, since when it had been present intermittently. A few hours before entrance she was attacked by a sharp stabbing pain in the left ovarian region, succeeded by fainting. Vaginal examination showed nothing but diffuse tenderness over the lower abdomen. The patient was reacting, and was kept under observation for a few days. On Sept. 22, for the first time, a tender mass was found to the left and behind a retroverted uterus, not large or of definite outline. She was watched until Oct. 5, having no more pain and constantly gaining in condition, the mass slightly increasing in size. It was then thought advisable to perform operation.

On review of the diagnostic points, this woman presented no symptoms of pregnancy, but is a typical instance of the accepted dictum, that when a woman who has been exposed to impregnation has a menstrual irregularity, followed by sharp abdominal pain, and this succeeded by collapse, the diagnosis of extra-uterine pregnancy is intrinsically probable. In this case it was further strengthened by the gradual development of a tumor in the left flank.

The condition proved to be an acute hydrosalpinx alongside of a small ovarian cyst, the latter evidently of some duration.

CASE IV. Mrs. B. was seen with Dr. C. F. Painter. Thirty-four years old. Sixteen years married. Two children, two miscarriages; last six years ago. With first miscarriage, thirteen years ago, sepsis, curettage, and in bed eight months. Since then always more or less of a neurasthenic invalid. For ten years after this was liable to sudden and very severe attacks of abdominal pain, then had an appendectomy by another surgeon, at which time the uterus and tube were found bound down in retroversion, but at the request of the family were not disturbed. After this she was free from pain for two years and until twenty-four hours before I saw her, during which time she had been having another of the familiar attacks, apparently of tubal colic. Her periods had always been fairly regular at from twenty-three to twenty-four days, except that four months before I saw her she had had a week of menstruation, which had occurred after an interval of twenty-eight days and was succeeded by ten days of slight drizzling flow. Examination showed a retroverted uterus with tubal masses on both sides. The question of extra-uterine at once suggested itself, but was dismissed, as there were no signs of pregnancy, and the patient was inclined to consider it impossible.

She was habitually confined to her bed; I kept her very quiet for about three weeks, watching her along on unimportant treatment, until I was informed by telephone one morning that she was miscarrying. On my arrival I found that she had just passed a blighted ovum of somewhat peculiar appearance, which was sent to Dr. Whitney.

This woman was a chronic invalid, presenting no signs of pregnancy, having had no menstrual irregularities except that one period had been of the normal length, while her habitual period was a few days shorter. She had had no pain other than that she had been accustomed to for thirteen years, but Dr. Whitney reported the specimen to be the uterine decidua of a pregnancy without evidence of chorionic villi or amnion, and therefore symptomatic of a pregnancy outside the cavity of the uterus. On this evidence, and on this alone, I operated, and found an ectopic pregnancy  $5\frac{1}{2}$  cm. long and so near rupture that, although it was non-adherent, it was impossible to lift it out of the abdomen without bursting it. It was rendered nonpalpable, on digital examination, by the large mass of adherent tubes and retroverted uterus which lay below it.

Dr. Whitney's report is appended: "The tube from Mrs. B. shows a flattened oval tumor 5.5 by 3.5 cm. At the end of the tube, on the surface, is some hemorrhage and adhesions. At one part is a shaggy membrane projecting, which on microscopic examination shows branching filaments with clubbed ends, quite flat and corresponding to the villi of the chorion of the tenth to thirteenth week of pregnancy. On opening the mass there was a cavity about 2 cm. long lined with a very thin membrane. No embryonic remains were found. The diagnosis is a tubal pregnancy with abortion of about the tenth week."

CASE V. C. D. was admitted to my wards at the Boston City Hospital March 17, 1901. Thirty-two years old. Married ten years. Three children, one miscarriage at two months, one year before. Her periods had been regular until two months before, that is, she had missed one period and another was due. There were no other signs of pregnancy, which had not been thought of. One week before entrance she was seized with severe pain in both lower abdominal quadrants, lasting about two hours. During the next three days she vomited incessantly and was very weak. Two days later she had another attack of pain, also associated with vomiting, but had been comfortable for two days before entrance. During the next three days she was comfortable. Vaginal examination was strictly negative except for marked tenderness throughout the lower abdomen, but her pain was constant, and the abdomen was accordingly opened on March 20.

A review of the diagnosis shows that the only symptom was amenorrhea of nearly two months' duration and diffuse abdominal pain with tenderness, attended by vomiting. One ovary was found filled with blood, the left tube was ruptured in its middle third, nonadherent, and at the time of the operation not bleeding. A small macerated fetus was found free in Douglas' fossa. It is interesting to compare the symptomatology of this case with that of Case III, from which it differs in the existence of amenorrhea instead of menorrhagia.

CASE VI. E. L. C., admitted to my wards at the Boston City Hospital April 9, 1901. Two children, youngest six years old. Menstruation was regular until the appearance of the usual period earlier in January, since which time she had flowed almost continuously, and at times excessively. On Feb. 2 she had a severe attack of abdominal pain, which lasted intermittently for one week, the pain being referred to the right lower quadrant. After entrance there was no pain, but continued flowing. On vaginal examination, April 10, showed a mass on the right, which I thought probably ovarian or fibroid, filling almost the whole fossa of Douglas, and extending somewhat to the left across the back of the uterus. The patient had not thought herself pregnant, there had been no amenorrhea, the only symptom possibly referable to extra-uterine pregnancy was that of intermittent abdominal pain, which is, however, as we all know, common to many other conditions. An abdominal incision revealed a mass of clotted blood and semiorganized blood lying to the right of and behind the uterus and partially enclosed in an inflammatory sac formed of the right tube, ovary and broad ligament, with neighboring coils of intestines. The tube and ovary were removed and submitted to the pathologist. The first pathological report was negative; later, however, chorionic villi were found, and the case must, therefore, be considered one of extra-uterine pregnancy without symptoms, so far as could be discovered from the history of a somewhat unintelligent woman.

CASE OF COMBINED EXTRA- AND INTRA-UTERINE PREGNANCY.<sup>1</sup>

BY H. P. PERKINS, M.D., WEST NEWTON, MASS.

THIS case is one of some interest beyond the presence of the condition for which I have the pleasure of presenting it to this society tonight.

The patient, a woman twenty-six years old, in good circumstances, well developed, weighing 130 lbs., had been under my care for two years, with periodical attacks of hysteria, with convulsions of minor grade, and occasional attacks of hystero-epilepsy. These attacks were frequently of menstrual origin, but at other times were brought on by overindulgence in stimulants or from family disturbances.

There were two well-marked zones. One was in the region of the left eye, the organ being amblyopic and frequently congested. The second zone was over the region of the right ovary and was very hyperesthetic. Mild seizures could be induced at any time and severe seizures made worse by pressure on the zones. I had at various times given her treatment for ovaritis, the right ovary being considerably enlarged and tender.

Within the year previous to the pregnancy she had had two mild attacks of appendicitis, with slight temperature and considerable pain, each attack lasting about a week. With them there was no marked induration, but the appendix could be felt, swollen and rigid. The patient could not be induced to have an operation performed either during or following these attacks, although told of the dangers. It is a curious fact that, although practically springing from the hysterogenous zone, these symptoms were not accompanied by any hysterical outbreak.

She had been married five years. Her menstrual life had been fairly normal except for the occasional hysteria already spoken of, with little pain and no excessive hemorrhage. In her early married life she had one pregnancy, which ended in an early abortion, the cause of which I could not learn, but believe it was induced. She passed her menstrual period, due about Nov. 30, but had no nausea. There was some slight pain two weeks later, but not enough to require attention.

On Dec. 21, while riding in a street car, she had very sharp darting pains low down on the right side. These were cramp-like, but were easier while standing, so that she rode a little further in this position. As they grew worse, she took a carriage and drove to the house of a friend who was a physician. There she went to bed and was given a hypodermic of morphia, which relieved her. She had no fainting or nausea, no evidences of shock. She did have a slight chill, followed by a low grade of fever which lasted until I saw her at her home in Newton. No vaginal examination was made and no attempt at a diagnosis.

I first saw her on the evening of Dec. 24. She was not feeling ill and had no sensation beyond that of slight pressure and fulness low down on the right side. She said she had had another of

her appendicitis attacks. There was no nausea; the functions of the bowels and kidneys were normal. Temperature 100.6°, pulse 110. There was some tenderness on pressure on the right side, extending downward from about the sup. spin. process, with the centre just below the McBurney point. There was slight dulness on percussion over this region, but not well marked.

By the vagina the uterus was found in normal position, but a little high, fairly movable and enlarged. The ovary and tube of the left side were found normal. At the right side was felt an illy defined boggy mass, seemingly closely connected to the uterus, extending outward to the brim, and exquisitely sensitive to pressure. Pain was also caused by moving the uterus upwards or to the left.

It will be seen in this brief statement of the history of the case that the diagnosis was not altogether clear sailing. She had been sterile for several years, but none of the absolutely classical symptoms of extra-uterine pregnancy were present beyond this fact and that of sudden pain. There had been no bloody vaginal discharge, no decidua remnants. The uterus was absolutely enlarged and undoubtedly pregnant. It was not bound down or pushed to one side. The objective and subjective symptoms were all characterized by their mildness. The patient had had a chronic ovaritis. She had had two attacks of appendicitis and, to her feelings, this attack was much like the others. But, on the other hand, her ovaritis could not be responsible for the sharp pains with the boggy mass close to the uterus. A ruptured appendix with its inflammatory product would give more decided signs of its presence. A mild appendicitis might be present, but alone it could not be responsible for the whole train of symptoms. There could be no question of salpingitis. The character of the onset, the pain, the slight dulness on percussion, the peculiar feeling in the vault, led to the conclusion that what I had to deal with must be a hematocele. The cause of this I could not determine and so informed the patient. The possible conditions were fully explained and the need of immediate operation, but this she would not consent to.

Dec. 25. Condition was about the same, but the temperature and pulse had both subsided.

Dec. 28. The temperature was again 100° and pulse 110, and the pain was more marked.

I was now convinced of the condition existing, and after great difficulty she finally agreed to an operation the next day, which I did at the Newton Hospital. The incision was median, and on entering the abdomen a quantity of fluid blood with some clots escaped. This was not measured, but was estimated at between 20 to 30 oz. A mass of adherent tissue was broken through, and the bleeding point found to be in the right Fallopian tube, which was enlarged and ruptured close to the uterus. From the ruptured cavity there was some little fresh blood oozing. This was clamped and ligated; the folds of the broad ligament were infiltrated with blood and covered

<sup>1</sup> Read before the Obstetrical Society of Boston, Dec. 12, 1901.

with clots, which were removed. The ovary was found considerably enlarged and cystic, more than three-quarters of its structure being involved. This was also removed. The portion of the tube involved was less than one-half inch from the uterus, but the enlargement did not invade the uterus itself. Great care was taken not to disturb the uterus, in the hope of saving the normal pregnancy, but the ligature securing the tube had to be placed practically on the uterus itself, owing to the friable state of the tissues. The tip of the appendix was adherent to the ovary, the appendicular ovarian ligament being obliterated. The organ was swollen and congested, and was removed. After the usual washing out with saline solution the wound was closed.

The patient rallied promptly from operation, her highest subsequent temperature being 99°.

Having used such care in the manipulations, I had hoped to save the uterine fetus, but flowing and pain began on the fifth day after the operation, Jan. 3.

On Jan. 4, without ether, I dilated and curetted, removing the remains of an eight weeks' fetation. The uterus was swabbed out with iodine and packed with iodoform gauze, which was removed the next day, no symptoms developing.

The progress of the case was uneventful, and she left the hospital on the fifteenth day after operation. Her condition since then has been most satisfactory. She has gained in flesh and strength and control over herself, having had but two of her hysterical attacks in the last year, which were of short duration and light character.

In studying this case there are to me some interesting points. The uterine pregnancy and existence of other morbid conditions were elements tending to confuse the diagnosis, but I still cannot understand how the condition of hemorrhage present could cause so few subjective symptoms.

How small a portion of ovarian structure is required for efficient work was shown by the condition of the ovary removed. The intimate connection between the diseased ovary and the appendix was interesting as to the influence the former had in causing the inflammatory attacks of the other, which contained no concretion or fecal matter. Finally, the practical cessation of the hysterical outbreak which has followed the removal of the diseased ovary showed that this hysterogenous zone had a cause for being.

ACCORDING to a late report, cholera is epidemic in various parts of Asia. Over 100 deaths have occurred at Medina, and it is also very prevalent among the Chinese on an island opposite Canton. One European in Canton is said to be dead from the disease. The Hong Kong authorities are taking every possible precaution against it. A despatch from Melbourne states that all dirty blocks are being cleaned, rats are being destroyed and garbage is being burned, in order to prevent the further spread of bubonic plague, which is epidemic in parts of Australia.—*American Medicine*.

## Clinical Department.

### ACUTE LYMPHEMIA WITH ESTIVO-AUTUMNAL MALARIA.

BY PHILIP KING BROWN, M.D., SAN FRANCISCO, CAL.

PATIENT, A. R., male, 45 years old. Applied for treatment in September, 1896, giving a history of having lived for some years in a malarial country but without having contracted malaria. He had been in San Francisco but a few weeks, and had felt badly ever since his arrival. No history of any acute illnesses and no lues. He has used alcohol to excess for many years and smoked moderately. Complained of headache, malaise and fever, with irregular chills for some weeks. Prostration was extreme for a few days prior to the examination.

The patient's heart was dilated, the arteries were atheromatous, the urine contained a small amount of albumin with hyaline and granular casts. The liver was 14 cm. broad in the right mammary line, the spleen was easily palpable during inspiration, but not tender. There were no scars on body or penis. The glands were everywhere slightly enlarged, but not particularly tender. The skin was pale and there was a puffiness about the eyes.

Temperature at 11 A.M. 102°, pulse 100. Blood examination showed a leucocytosis of 40,000, 82% of the leucocytes being large lymphocytes. There were also a good number of estivo-autumnal parasites in the blood — ovoids and crescents.

The patient died in five weeks. My unfavorable prognosis sent him elsewhere for help, and I did not see him again.

The accompanying photograph shows a characteristic field.

## Medical Progress.

### REPORT ON DERMATOLOGY.

BY JOHN T. BOWEN, M.D., BOSTON.

(Concluded from No. 11, p. 289.)

#### ORTHOFORM ERUPTIONS.

Dubreuilh<sup>1</sup> reports two interesting cases of dermatitis from this drug. Orthoform has been generally considered innocuous, as large ulcerated surfaces may be covered with it, without causing any signs of intolerance. Its analgesic properties on surfaces denuded of epidermis are very marked, while, when applied to an intact skin or mucous membrane, its effect is slight or wholly wanting. The eruptions that may be caused by orthoform are either of an erythematous nature, complicated or not with vesicles and pustules, or gangrenous. The erythema may be limited to the vicinity of the part to which the orthoform has been applied, or it may become generalized over a large part of the body. It is not necessary that the orthoform be applied to a

<sup>1</sup> *La Presse méd.*, May 12, 1901.

wound, as application to the unbroken skin has given rise to severe dermatitis.

Asam was the first to call attention to the gangrenous lesions from orthoform. He reported nine cases in which wounds or varicose ulcers were treated with orthoform and gangrenous ulcers produced, which were accompanied by violent pain. In some of the cases it is stated that no relief from the pain was afforded by a further application of the orthoform. This was not true in the following cases that Dubreuilh reports:

The first case is that of a married woman of 38, of an intensely neurotic temperament, who had applied powdered orthoform for relief from pruritus of the anus. The part was found to be intensely inflamed, and in the immediate vicinity were isolated and confluent ulcerations, with a sharply defined border, and a dry, grayish floor, giving the impression of a limited gangrene of the skin. They had appeared spontaneously, without preceding inflammation or bullæ, and had persisted for months. They were the seat of a very violent sensation of burning pain, which could only be relieved by renewed application of orthoform.

The second case relates to a woman of 80 years, who had been recommended to use an ointment containing a small amount of cocain and 10% of orthoform for a pustular and excoeriated eruption of the hands. The first application was followed by an intense dermatitis extending over the forearms. Applications of a mixture of powdered dermatol and salol caused so much pain that recourse was again had to the orthoform ointment, with the result that it instantly relieved the pain. When seen by the writer the fingers were swollen and desquamating in large masses, and covered with sharply punched out ulcers on the dorsal and lateral surfaces. These ulcers were not sensitive to the touch, but when exposed to the air, or at other times without known cause, they were the seat of violent crises of pain, which was instantly relieved by application of the orthoform ointment. At first it was impossible to persuade the patient to give up the application, the pain was so intense. Finally, recourse was had to subcutaneous injections of morphia, and by means of these and of chloral the ulcers healed under a weak creolin dressing in the course of two weeks. The writer remarks upon the fact that the acute erythema caused by the orthoform in this case disappeared in spite of the continuance of the drug, while at the same time the latter produced another type of lesions.

#### OIDIOMYCOSIS OF THE SKIN AND ITS FUNGI.

Ricketts,<sup>6</sup> who has had especial opportunity in Chicago for studying this class of affections, considers that the organisms isolated from cases of so-called blastomycetic dermatitis fall into three groups, which are so much alike biologically and morphologically that they probably represent different species of a common genus, that of *oidium*. After a review of the history of *oidia*, of the oc-

currence of blastomycetes and saccharomycetes in human and animal lesions other than blastomycetic dermatitis, and of experimental infections in animals, the author gives a summary of so-called blastomycetic infections in man. He would include:

(1) The case published by Busse, in 1894, as *saccharomycosis hominis*, in which there were numerous subcutaneous abscesses containing a yeast fungus, and similar lesions were found in the internal organs.

(2) A case published by Curtis, in 1896, under the title "*saccharomycose humaine*," in which also subcutaneous abscesses containing a yeast fungus were found. Similar tumors were produced by inoculation of the pure cultures on animals.

(3) The blastomycetic dermatitis, first observed and described as a pure skin disease by Gilchrist in 1894. Twenty-six cases are referred to by Ricketts as belonging to this form, although the history is not complete in each instance. Of these he himself contributes 11 not previously reported (or only partially), and in most of these careful pathological studies were made. It would seem from these statistics that no part of the skin is immune from this affection, which bears a very close resemblance to the verrucous form of cutaneous tuberculosis, both clinically and histologically. Of the 26 reported cases 15 have been discovered in the Rush Medical College in Chicago. In 10 of these clinical study was possible, and in 9 an attempt was made to cultivate organisms, this attempt succeeding in 7 instances. Stained sections showed:

(a) A large amount of carcinomatoid epithelial hyperplasia.

(b) Minute intra-epithelial abscesses.

(c) A granulomatous condition in the corium, characterized by masses of plasma cells, minute abscesses and tuberculoid nodules and giant cells.

(d) The presence of a spherical budding organism, particularly in the epidermal and sub-epidermal abscesses, but also distributed unevenly and in small numbers in epithelial masses and granulation tissue. The cases from which a mould fungus has been isolated exhibit a remarkably large number of eosinophiles. In some of the cases inoculation of animals with pure cultures obtained from the lesions produced abscesses from which the same fungus could be isolated.

(4) A number of cases of a generalized infection accompanied by similar cutaneous lesions have been reported, especially by Rixford and Gilchrist, the disease being very similar to acute ulcerative and miliary tuberculosis. The authors have considered this disease to be protozoic in character, and have named it protozoic dermatitis, because of the structure of the large spherical organisms found in it and their inability to cultivate them, as a rule, on artificial media. Ricketts considers that this protozoic affection is simply another form of oidiomycosis, inasmuch as a mould fungus cultivated from a case by Ophüls and Moffit appears identical morphologically and

<sup>6</sup> *Journal of Medical Research*, Boston, December, 1901.



pathogenetically with that cultivated from five of his own cases. He concludes that:

(1) The so-called protozoic disease of Posadas, Wernicke and others, Busse's and Curtis's saccharomycosis hominis, and Gilchrist's blastomycetic dermatitis are various manifestations of the same disease.

(2) The condition in the skin possesses constant clinical and histological characteristics, which separate it positively from all other skin diseases, particularly verrucous tuberculosis, carcinoma and syphilis.

(3) The organisms isolated from various cases differ in minor respects among themselves, but are so closely related morphologically and biologically as to justify their inclusion in a common genus—oidium; they are analogous in a pathogenetic sense to the fungi which cause actinomycosis, and to those causing trichophytosis.

(4) The variations among the organisms allow the recognition of three morphological types: (a) Blastomycetoid, or yeast-like; (b) oidium-like; (c) hyphomycetoid.

(5) There are two histological forms of the disease in the skin, the eosinophilous and the non-eosinophilous, the former being associated with the mould type of the organism.

(6) In accordance with Conclusion 3, oidiomycosis is an appropriate term for the conditions caused by the organisms, and oidiomycosis cutis for the disease as it occurs in the skin.

(7) Aside from the infections considered in this communication, certain cases which have been described in the literature from time to time indicate that oidium-like organisms may cause other severe pathological conditions in man.

#### THERAPEUTIC DETAILS IN THE TREATMENT OF FURUNCULOSIS.

Arning<sup>6</sup> asserts that the successful treatment of furunculosis depends upon a method carried out with the minutest detail. The first axiom is the treatment of the individual lesions, since every furuncle is a culture medium for staphylococci, and is a menace of infection. The second rule is protection of the adjacent parts of the skin, and the third treatment of the dermatoses that are often the basis of a local furunculosis, chiefly those of a pruriginous nature. Further points are the protection from external irritants, and correction of constitutional disturbances.

In treating the individual lesion Arning warns against too energetic disinfection of the skin in a surgical sense, as it is important not to break the skin. With regard to an abortive treatment, the writer, after numerous attempts with the injection of antipyrin, carbolic acid, painting with iodine, carbol-mercurial plasters, etc., has come to use the thermo cauterium entirely. The small beginning furuncle is pierced at its centre with a fine-pointed Paquelin burner. Pain is immediately relieved by this operation, owing to the annihilation of the poison by the heat, in the writer's opinion. In places where the clothes touch, or

where the surrounding skin is already irritated, a varnish of the following composition is applied: Tumenoli, 8.0; ether. sulf., 20.0; tr. benzoin, 30. Over this, before it is dry, is laid a small bit of gauze, and over this in turn a strip of plaster, perhaps a 2% salicylated soap plaster. This dressing is changed every day.

With regard to the second rule,—protection of the adjacent parts of the skin, rubbing of collars, or sharp corners of clothing, should be especially avoided. The hair should not be clipped too closely behind, as short, stiff hairs increase the irritation of the collar.

Frequently a psoriasis or a mild eczematous condition of the occipital region furnishes, through the itching and resultant scratching, the origin of a furuncle. Pediculi capitis should be thought of. In the case of furunculosis of the axilla, to which the female sex is especially predisposed, the irritation from clothing, from too closely cut armholes, and from India rubber shields, which tend to cause maceration, must be taken into account and removed. Eczema about the groins is often the starting point of furunculosis of this region, as well as scabies and pediculosis pubis. In these cases care must be taken not to use such energetic treatment for the furuncles as will serve to keep up the underlying condition. Boracic acid solutions and ointments, creolin baths and salicylic acid have proved of great value under these conditions. Creolin baths, 20 to 25 gm. to a full bath at about 30° C., are especially recommended. After the bath there should be careful drying of the surface, without rubbing, and bathing of the part in a 2% solution of salicylic acid in alcohol. The small lesions are then quickly touched with a small Paquelin point and the whole affected surface covered with a thin zinc paste to which sulphur and camphor in small quantities may be added. In general the writer wishes to warn expressly against the use of remedies of so stimulating a character that the sound skin becomes irritated.

### Reports of Societies.

#### THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of Dec. 17, 1901, the president, Dr. G. J. ENGELMANN in the chair.

Dr. J. W. ELLIOT, by invitation, reported

A CASE OF COMBINED EXTRA- AND INTRA-UTERINE PREGNANCY.

Dr. H. P. PERKINS, by invitation, also reported

A CASE OF COMBINED EXTRA- AND INTRA-UTERINE PREGNANCY.<sup>1</sup>

Dr. WHITNEY: The best two papers that I have found upon this subject are those of Brown<sup>2</sup> and of Strauss.<sup>3</sup> As the cases reported by Brown

<sup>1</sup> See page 309 of the Journal.

<sup>2</sup> Transactions Obstetrical Society, 1880.

<sup>3</sup> Zeitsch. f. Gyn., March, 1901.

<sup>6</sup> Monats. für. prak. Derm., Bd. xxxiii, No. 7.

occurred before the days of aseptic surgery, the mortality was of course large; the cases collected by Strauss give much better results. The most interesting case was that in which the mother and both children lived. The statement has been made that such double pregnancies occur in about one in fifty cases of extra-uterine pregnancy. This seems to me much too large a proportion. I have seen many more than fifty cases of extra-uterine pregnancy, yet Dr. Elliot's is the only one of combined pregnancy that I have examined.

DR. STORER: Will Dr. Whitney please inform us whether in the cases of which he speaks, the two pregnancies were always synchronous or whether in some it was not a normal pregnancy grafted on an earlier extra-uterine pregnancy with the retained products of the former conception.

DR. WHITNEY: As it is generally conceded that ovulation ceases during a pregnancy, such cases must be synchronous. Where there is any discrepancy in the age of the two fetuses it is more likely that the development of one has been arrested by abortion than that they are ova of different ages. The point is that the presence of fetal envelopes from the uterus does not exclude the presence of an ectopic gestation.

DR. WASHBURN: I have never had a case of simultaneous pregnancy in the uterus and in the tube. I do, however, remember well a case which, examined under ether at two and a half months, showed a very distinct mass outside of the uterus which in the course of eight days worked its way into the uterine cavity.

DR. DODGE: It is interesting in view of the question of superfetation, that in Dr. Elliot's case it is stated that the extra-uterine pregnancy was of three and a half months' duration, while the intra-uterine one was only two months.

DR. WHITNEY: As there was no fetus in the extra-uterine condition the age could only be approximately determined by the appearance of the villi, which cannot be fixed as definitely as the fetus.

DR. BOARDMAN: Would not a double uterus allow the possibility of a pregnancy in one cavity with a later one in the other? As regards Dr. Elliot's case I do not see why it is not possible that the fetus expelled by miscarriage was not anything but the fetus originally extra-uterine that had made its way into the uterus through the tube. If so, the case would, of course, be one of simple extra-uterine pregnancy.

DR. WHITNEY: In that case it seems to me inconceivable that the tube between the uterus and the tubal pregnancy should have been of normal size.

DR. ELLIOT: I have seen a case in which the fetus thus slipped from the tube into the uterus, and suspected it in this case. But the uterine end of the tube was very small, while the mass was as large as two thumbs and it was ruptured outside. Moreover, the tube between the mass and the uterus looked perfectly normal, and it seems, as Dr. Whitney says, inconceivable that

such a mass should have passed through it and left it normal.

DR. BOARDMAN: I do not question that this view is correct. I only suggest that nature might have passed the fetus through the apparently normal tube. We know how a gallstone of considerable size can pass through a small canal and leave it intact.

DR. EDWARD REYNOLDS read a paper entitled A SERIES OF CASES OF EXTRA-UTERINE PREGNANCY.\*

In the paper read by Dr. Elliot the ground was taken that it was wiser in critical cases to wait before operation until the patient had been stimulated and reaction had taken place.

DR. STORER: I have known for some time that Dr. Elliot holds these views, and am glad to have him state them to us so clearly. I do not think, however, that in all cases the expectant treatment will be followed by such striking success. I have in mind a case on which I operated last year. She was brought to the hospital in collapse, and had been thought to be dead in the carriage. She revived a little under stimulation, but by the time I got to the hospital the pulse had again become almost imperceptible, the breathing worse and the extremities cold again. Upon opening the abdomen (as she would evidently soon be dead if nothing were done) I found active hemorrhage going on. She died within an hour after a quick operation. Hardly a drop of blood was lost by the operation, yet her death was from acute anemia. An operation a week later upon another patient in practically the same condition gave a recovery without an untoward symptom. The first patient would undoubtedly have bled to death if not operated upon, and I consider the operation as giving her the one chance in a thousand. I confess that with cases like this in mind I should hesitate very much about waiting for reaction with possibly active hemorrhage going on.

DR. E. REYNOLDS: It strikes me that one of the things commonly said about extra-uterine pregnancy is absolutely wrong; I refer to statements about the large amount of blood found in the abdominal cavity. Personally I have never found more than a relatively small amount—never enough to bring up the question of a patient's bleeding to death. I believe it is mostly shock that kills.

DR. ENGELMANN: I believe that if hemorrhage is fatal it is the first violent hemorrhage and not subsequent oozing.

DR. J. G. BLAKE: Up to twenty-five years ago there were few laparotomies for pelvic hemorrhage. We used to see many cases of hematocele which were doubtless most of them cases of ruptured extra-uterine pregnancy. Many of those cases recovered. It is rare to have a fatal result after the primary shock.

DR. D. W. CHEEVER: I have had little experience in these cases, but I am quite sure that the old rule not to operate in a state of collapse is of

\* See page 306 of the Journal.

general application. We are all familiar with accident cases brought in pulseless in which the question of operation arises, which, if operated upon at once die, and if allowed to react before operation, get well. I am inclined to agree with Dr. Reynolds that the cause of death in some cases is due to the place where the hemorrhage occurs and not to the amount of blood lost. Nature is apt to stop the hemorrhage, and if it recurs it is not apt to be such as to threaten life.

DR. PERKINS: I would like to submit to Dr. Elliot a case which I think I saw bleed to death from a ruptured tubal pregnancy. Operation was refused until a certain man could be procured to perform it, and while waiting for him I saw the patient's abdomen grow larger and larger. Three quarts of blood were taken from it at the final operation. Death followed in forty-eight hours—a result that I am sure would have been different had the operation been earlier.

### Recent Literature.

*The Surgical and Medical History of the Naval War Between Japan and China During 1894-1895.* Translated from the original Japanese Report, under the direction of Baron Saneyoshi. By S. SUZUKI. Tokio. 1901.

This is a large volume of 544 pages, containing a detailed and painstaking account of the medical history of the recent Japanese-Chinese naval war. An accurate account of the battle of Yalu is given at the beginning of the book, in which the effect of shells both upon vessels and upon men is narrated at length. Following this, and comprising the bulk of the volume, is a systematic consideration of the injuries and disease from which the participants in the battle suffered, as well as a general discussion of food, drinking water, clothing, prophylaxis of disease, etc. The whole work is a monument of industry and care, and should prove of the greatest service to surgeons and others interested in the effects of modern projectiles. An excellent feature of the book is the profusion of its illustrations, many of them full-page colored plates. The type is clear, and the general arrangement of the subject matter will appeal to all lovers of well-made books.

*Outlines of Anatomy.* A guide to the Methodical Study of the Human Body in the Dissecting Room. By EDMUND W. HOLMES, A.B., M.D., Demonstrator of Anatomy, University of Pennsylvania (1892-1901), etc. Second edition. Pp. 185. Lancaster, Pa.: Press of the New Era Printing Company. 1902.

The author makes the modest claim for this small book that it "was written in an endeavor to introduce method and discipline into the dissecting room, and by thus securing cleaner and more systematic work, to revivify, if possible, the interest in practical anatomy." It consists chiefly of an outline of each day's work in the dissection of the human body, and tells the student what to

do, what to see, and what to read in connection with his practical work. Such books are useful, and in no way infringe the sphere of the larger textbooks. It is probable, however, that each demonstrator of anatomy would prefer to modify the details of such an outline to meet his personal views of the scope of a course in dissection. The book is satisfactorily printed, in type of generous size, and contains a few explanatory diagrams.

*Uterine Tumours: Their Pathology and Treatment.* By W. ROGER WILLIAMS, Fellow of the Royal College of Surgeons. New York: William Wood & Co. 1901.

The interest of uterine tumors both to the surgeon and pathologist is great, as the author remarks, "as well for the frequency of their occurrence as for the important surgical procedures often undertaken for their removal." The author considers the subject first from the point of view of a statistical investigation of 2,649 consecutive cases, then discusses the embryology and anatomy of the uterus, and finally the pathogenesis, morphology, pathology, clinical features and treatment of myoma, uterine cancer, and the other rarer uterine tumors. The result is an interesting monograph of 350 pages. It contrasts favorably, by reason of its comprehensiveness and accuracy, with the chapters devoted to the subject in many "systems of gynecology" in which the authors have been, perhaps, necessarily cramped by the necessity of confining themselves within a given number of pages, in order to prevent the volume from becoming too bulky.

The publisher's work is of high character.

*Diet and Food. Considered in Relation to Strength and Power of Endurance, Training and Athletics.* By ALEXANDER HAIG, M.A., M.D. (oxon.), F.R.C.P. Third edition. Philadelphia: P. Blakiston's Son & Co. 1901.

This is a small volume of 112 pages, which again reiterates the well-known doctrines of its author. We are strongly of the opinion that the case against uric acid is not so bad as he would have us believe, but as a point of view it is certainly worthy of attention. This third edition of the book will no doubt do its share, as its predecessors have done, in keeping before the professional mind the significance of food in the treatment of disease and the danger of its abuse.

*Crazes, Credulities and Christian Science.* By CHARLES M. OUGHTON, M.D. Chicago: E. H. Coligrove. 1901.

This is a brief, vigorous and plain-spoken attack on Christian Science and certain allied vagaries of medical treatment. It contains few original ideas for those who have studied the subject, but we can easily imagine that it might influence the wavering. To the person really addicted to Christian Science it would, we suspect, serve merely as a lash to his enthusiasm. It is not sufficiently conciliatory to be a valuable missionary document, but its writing has no doubt afforded the author a good deal of righteous satisfaction.

THE BOSTON  
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**EXPANSION OF HARVARD UNIVERSITY  
MEDICAL SCHOOL.**

WITHIN a week public announcement has been made of the completion of the amount desired — nearly \$5,000,000 — for the plan of development of the Harvard University Medical School. The situation, as regards medical education, is unprecedented. Never before, so far as we know, has such a sum of money been set aside for the immediate purposes of medical science. It is a clear and final recognition of the fact that in the popular mind medicine has taken its place among those branches of human endeavor which have a distinct right to expect and claim liberal and permanent endowment. Such has been the attitude of the many contributors to the fund for the extension and development of the Harvard Medical School. When the means have been provided for such an expansion as this promises to be the responsibility of the givers ceases and that of the receivers begins. This fact, no doubt, all who are interested in the university at large and in the medical school in particular are pondering at the present time. It has been a task of much responsibility to provide the requisite means for the accomplishment of this new enterprise; it is a far greater responsibility to provide for the wise expenditure of the large sum now available. The real question at issue is not how many buildings may be built or how complete the facilities for students may be made, but rather how the best interests of the whole profession of medicine may be fostered and invigorated, and thereby the greatest good of the people at large be subserved. This is the duty which the university has taken upon itself, in venturing upon this great expansion of its medical department.

There are certain aspects of the question about which there can be little difference of opinion. In the first place, the need of new buildings is ap-

parent to anyone acquainted with the trend of recent educational methods. Each student must be provided with laboratory facilities for a considerable portion of his medical course, and this means a very decided increase of space under the best conditions of light and air. Naturally, also, the university authorities must have an eye to the future in the construction of these laboratory buildings. Were they to prove inadequate in the near future, either as a result of great increase in the number of students or from other cause, the blunder would not be lightly condoned; if, on the other hand, a reaction from the extremes of laboratory teaching should occur, the waste of space would be equally unfortunate. To meet the probable exact needs of the future in this respect will call for the highest wisdom and prophetic judgment. The development of special departments of medical research, now perhaps dimly or not at all foreshadowed, must also be taken into account in the design and arrangements of these buildings. Laboratories, for example, more closely associated with clinical work than have heretofore existed will undoubtedly form an integral part of the general scheme of instruction in the future. Patients will be studied in the laboratory spirit as never before, particularly that great class suffering from chronic disease, and the provision for this clinical-laboratory study of such patients should not be lost sight of in a modern scheme of laboratory construction. The possible separation in the near future of so-called basic studies from elective studies must also be borne in mind in the adaptation of the buildings to the requirements of teachers and students. The growth of an elective system in some form may be looked upon as inevitable in medical education. Opportunities should be given, not only for the fullest development of what are now recognized as the main departments of medical study, but also for the development of subdepartments, the importance of which may now be merely conjectured. By this division and at the same time concentration of interest, results may be expected which can never be attained by the repression of various lines of work at variance with accepted precedent. Not only departmental libraries, but subdepartmental libraries should be fostered in the attempt to focus interest in special lines of investigation. To carry out such a plan of development means the construction of buildings with that end in view. Rooms should be arranged to meet demands which are already clearly defined, and also those tendencies which an intelligent foresight recognizes are about to take definite shape. In other words, the construction of the buildings should encourage the best there is in specialism.

Even if this ideal may be completely met, it is, nevertheless, discouragingly evident that, however conducive to the best work the best workshop may be, the responsibility lies far deeper than the clever adaptation of physical means to ends. If the university is to retain the traditions of the past in its department of medicine, it must not only maintain the standard it has already set for itself, but raise it to a still higher level. Provided with all the tools and facilities for research, the expanded medical school must foster investigators, develop teachers and train clinicians in the completest way. These tasks are all far more difficult of accomplishment than the construction and equipment of any number of buildings and laboratories. To their solution the best energies of the profession in this community must be given if the university is to be true to the trust imposed in it.

Investigators, no doubt, are born, not made. Genius cannot be cultivated, though it may be fostered. It is a sporadic product which appears at unexpected places and is rarely transportable. It can, therefore, never be held up as a reproach to an institution of learning that no great discoveries have ever come from its students or teachers. If such an event, by chance, occurs it is a lasting source of satisfaction, but the standing of an institution should never be reckoned in terms of such events. Good investigation this side of brilliancy may, on the other hand, most certainly be cultivated, and it becomes the plain duty of the modern medical school to discover and support, if need be, its own pupils and those who come from a distance for such work. The endowment of research is a phrase about which we are likely to hear a great deal in the coming years.

The development of teachers has never been assiduously prosecuted in medical education. The best investigators are often indifferent teachers; this is proverbial. It has long stood in the way of effective instruction wherever universities exist, and will, no doubt, continue to do so, to a greater or less extent. Nevertheless, we look forward to the time when men will be selected to teach because they have capacity in that direction, and not because they have attained distinction in some quite alien field. Teachers should be cultivated, just as we attempt to develop investigators; men who show aptitude should be given opportunities and not be suppressed. Medical education would certainly thereby be a gainer, and we should hear fewer complaints from the intelligent student body. The opportunity to cultivate medical teachers should not be lost sight of in the development which is now immediately before us.

The product of improved teaching will be a better equipped and more enthusiastic body of graduates, far better able to recognize the complicated interrelations of medical science, and hence more fitted to shape their careers to a worthy end. If original investigation is faithfully fostered, if the art of teaching is cultivated as a worthy end and sufficiently remunerated, if the ideals of the future practitioner be kept high, there can be little doubt that the destiny of the Harvard Medical School will be such as to justify, both to the lay and professional mind, the trust which has been imposed.

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#### THE PROGRESSIVE WORK OF THE ELMIRA REFORMATORY.

THE work of the New York State Reformatory at Elmira is always of interest to the physician and anthropologist, as well as to the community at large. For many years experiments have been undertaken at the institution which go far toward the solution of the problems of vice and crime. This work has done much toward readjusting the relation of the so-called criminal to society by recognizing what is good in him rather than by always emphasizing his vicious propensities. It is naturally undesirable to err on the side of sentiment, and equally so to do injustice to the victims of circumstance or heredity. A just balance is not easy to attain. Toward this end the Elmira Reformatory has long been working with more and more positive results, which are coming to have a wide bearing on certain of our most fundamental sociological problems. The annual report of the institution is, therefore, always a document of much more than passing interest. The report for 1901 is before us, and presents many statistics and details, which well repay a careful reading. One's final impression is that the field of work there undertaken, far from being hopeless, is one of the most encouraging upon which men of combined philanthropic and scientific tastes are engaged. Through the elaborate system of classification, the recognition of merit, together with the physical and moral influences under which the inmates live, the prisoners are almost invariably returned to the outer world better fitted to lead respectable and useful lives than when sentenced.

Much, of course, remains to be done, and this appears, in general, to lie in the direction of more careful medical examination of persons before being sent to the reformatory, as well as after admission. The problem is clearly a medico-social one, and the need is that greater emphasis be laid on the medical side, to the end that the

complicated social aspects of the question may the better be understood. Dr. Frank W. Robertson, general superintendent, suggests the advisability of an examination of criminals, by competent physicians, before they are brought before a judge for sentence. The judge would thereby be materially assisted in his often difficult duty, and a better preliminary classification of defectives would be attained. After admission Dr. Robertson also urges more painstaking medical examinations, that the deficient in intelligence, or the sick, may be more carefully classified. The study of the individual is a further necessity, rather than the mere observation of criminals as one of a class, or a variety of classes. To accomplish this means a high degree of enthusiasm on the part of specially qualified men. Regarding the influence of the physician in the institution, Dr. Robertson writes: "During the time which I acted as senior physician, I was impressed by the confidence which the inmates repose in their medical adviser; it is the physician who ministers to them when they are ill, thereby gaining a confidence seldom shared by others. It is the physician who must determine whether the inmate is physically able to perform the tasks allotted in the trades-school, or mentally equipped to receive the instruction afforded by the school of letters. In a way, it is the physician who may be said to be best able to determine the mental and physical capacity of the inmate; all of which goes to prove that it is possible for the physician to exercise an influence perhaps second to that of no other officer in the institution. It being maintained in many quarters that crime is a disease (and recent investigations would seem to support this view) would it not be logical, such being the case, to organize the staff upon a medical basis, and increase, rather than decrease, the number of physicians employed in reformatory institutions?"

The general tendency of employing medically trained men in institutions of various sorts is undoubtedly a step in the right direction. Apart from the value of the preliminary training, the time has come for physicians to recognize that their fields of usefulness lie beyond the realm of disease, as ordinarily understood, and extend into a consideration of the various maladies of the body politic, of which crime is certainly one.

#### AN AMERICAN PIONEER IN DERMATOLOGY.

AFTER a long and honorable service in the cause of medical education, Dr. James C. White has resigned his professorship of dermatology at the Harvard Medical School, to take effect at the end of the academic year, retaining, however, his

interest in hospital work and in private practice. It is forty years (1861) since Dr. White delivered his first lectures on skin diseases to a class at the Medical School; a time when the active pursuit and teaching of a specialty required courage and determination. In 1864 he gave a course of university lectures on skin diseases, and was also instructor in dermatology in the summer school. In 1866 he was appointed adjunct professor of chemistry, a position that he held until 1871, when he was made professor of dermatology, and this chair he has uninterruptedly occupied during the last thirty years. Dr. White's claim to the distinction of being one of the foremost in developing American dermatology and in enforcing its general recognition throughout the country will be denied by none of his colleagues in the American Dermatological Association, and his clear, succinct lectures and clinical demonstrations will always be remembered and appreciated by the graduates of the school who have been his pupils. The great credit is always due to the one who has shown the better way under difficulties, and those who succeed Dr. White, with increased facilities, should remember that what they may be able to accomplish has been rendered possible in large measure by his services as an initiator.

Apart from his furtherance of the cause of dermatology, Dr. White's interest in the general needs of the Harvard Medical School has been of great importance, and his influence in the faculty has been of much value in building up the new system of American medical education. It will be a satisfaction and pleasure to those who have profited by Dr. White's teaching and example to know that the governing boards of the university have given him the title of Professor of Dermatology, Emeritus.

#### MEDICAL NOTES.

CLEVELAND MEDICAL JOURNAL.—The *Cleveland Medical Gazette*, in its seventeenth year, and the *Cleveland Journal of Medicine*, at the beginning of its seventh year, have combined interests to form the *Cleveland Medical Journal*. In addition to those who were engaged in the publishing of the older journals, there has been enlisted in the support of the new one a complete representation of the medical interests of Cleveland. We are informed that it has been the guiding motive of those who promoted the consolidation to unite so far as possible the entire profession of Cleveland in the support of the *Cleveland Medical Journal*; that this journal will be the active exponent of the highest ideals of modern medicine; that it will seek to make the medical profession realize the mission of scientific medicine;



that it will stand for an active and pure professional polity; that it will represent all the physicians and all the medical institutions of Cleveland; and that it will not forget to chronicle the good work done by *confrères* in other cities, by those in this country, or by those in foreign lands.

**INSPECTION AND CLEANING OF HOUSES IN MANILA.**—According to the December Report of the Board of Health for the Philippine Islands, about 2,000 houses were cleaned and disinfected during that month and about 10,000 cartloads of dirt taken from these houses. The material carted away consisted of dirt, filth, infected earth, rubbish, mats, rags, broken furniture, broken tiles, brick, etc. In some instances as many as twenty wagonloads were taken from one house. Cases of plague had occurred or rats infected with the disease were found in about 25% of these houses. The houses were disinfected with chloride of lime, carbolic acid or solutions of bichloride of mercury. This work was done under the direction of Medical Inspector Meyer Herman, who deserves great credit for his energetic and efficient work. The assistant sanitary engineer, Mr. H. D. Osgood, inspected about 200 houses in the city in which plague cases had occurred or rats infected with the disease were found, and submitted estimates for their repair and remodeling. Already a large number of these houses have been repaired and placed in a sanitary condition and a number are under way.

**ST. LOUIS NOT LIABLE FOR DEATHS FROM BAD ANTITOXIN.**—It has been legally decided that the city of St. Louis is not responsible for damages in the deaths of the thirteen children who died through the administration of antitoxin procured from the Board of Health. The presiding judge held that the city acted for the State of Missouri, which cannot be held liable for the acts of its agents, and that the city, therefore, cannot be held liable.

**PENNSYLVANIA SOCIETY FOR THE PREVENTION OF TUBERCULOSIS.**—This society, organized in 1892 and incorporated in 1895, has recently published its report for the past year. It has been a source of gratification to its members that it has been able to exert a strong influence, not only in the city and State in which it had its origin, but by its example and by means of its publications has led to the establishment of similar societies in the United States.

**INVESTIGATION OF CANCER.**—A number of well-known physicians of western Pennsylvania, with Dr. Roswell Park of Buffalo, have recently held a meeting in Pittsburg for the purpose of discussing the pathology and cure of cancer and also to devise ways and means to raise funds for an inter-

national commission for the study of cancer. A meeting will later be held in Buffalo to organize a permanent society, elect officers and arrange to hold regular meetings from time to time.

**NEW MEDICAL BUILDING FOR TORONTO UNIVERSITY.**—A new \$125,000 building which is being erected for the medical faculty and the arts department of physiology of Toronto University will have its interior construction based on what is called the unit system, worked out by Prof. C. S. Minot of Harvard. The unit adopted here is 30 by 23 feet, with the long wall of each unit practically filled by two large windows, thus insuring perfect light.

**A LONGER MEDICAL COURSE AT MCGILL UNIVERSITY.**—It is reported that the faculty of McGill University, Montreal, has decided to ask the Dominion Government at the present session of Parliament to enact a law inaugurating a five years' course in medicine instead of four.

**A CENTENARIAN.**—Mrs. Deborah Doane King, the oldest and in several respects the most remarkable woman in Ohio, died last week. Mrs. King is reported to have been in her 106th year.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Mar. 19, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 14, measles 181, typhoid fever 11, smallpox 21.

**CLINICAL BUILDING FOR YALE MEDICAL SCHOOL.**—A new clinical building for the Yale Medical School is practically completed. It was erected at a cost of \$100,000 with money provided by a donor whose name has been withheld. It is 94 feet in length by 64 in width, and is three stories in height. The front portion will be occupied by the city dispensary, while the rear portion contains the lecture-room, amphitheatre and several ante-rooms immediately connected with it. There are also on the first floor twelve clinical rooms, a clerk's office, a prescription department and a students' waiting-room. On the second floor there are fourteen rooms to be used for general class work, a clinical room, a lecture-room and a waiting-room. On the third floor there are seventeen rooms to be devoted to general clinical uses.

**J. BAXTER UPHAM, M.D.**—Dr. J. Baxter Upham, formerly of Boston, died in New York March 17. He was eighty-two years old, and was born in Claremont, N. H., graduated at Dartmouth in 1842 and at the Harvard Medical School in 1847, practised medicine in Boston until the outbreak of the Civil War, and then

enlisted to serve through the war as a surgeon major under General Burnside. After the war he resumed practice in Boston and was for some years a visiting physician at the Boston City Hospital. In 1880 he went to New York and went into business. Two years later he retired on account of ill health. Dr. Upham was at one time president of the Handel and Haydn Society of Boston.

**THE DEPARTMENT OF MUNICIPAL STATISTICS IN BOSTON.**—All those who have had occasion to refer to the reports of this department of the Boston City Government would deplore its abolition, and it is to be hoped that a movement to this end among certain politicians may be promptly defeated. We could wish that all departments gave as much return in proportion to the outlay.

**THE HARVARD MEDICAL SCHOOL FUND.**—The conditions attached to Mr. John D. Rockefeller's gift of a million dollars to the Harvard Medical School have not only been already met, but more than met. Drs. Warren and Bowditch have so successfully pursued the completion of the task which they took in hand that in the short space of four or five weeks not only has the sum of \$765,000, called for by Mr. Rockefeller's stipulations, been raised, but by the generosity of the contributors and the zeal of the solicitors this sum has been exceeded by \$56,000, and a total amount of \$821,000 has been promised in addition to the two preceding gifts of a million dollars each from Mr. Morgan and Mr. Rockefeller already announced.

The largest single subscription to this sum of \$821,000 comes from Mrs. C. P. Huntington of New York, who offers \$250,000 for the construction of the Pathological and Bacteriological Laboratory, with the understanding that this laboratory is to be known as the Collis P. Huntington Laboratory and so designated by a suitable inscription upon the exterior of the building. In her letter to the president and fellows of Harvard University, announcing her intentions, Mrs. Huntington says:

"I am happy to say that I have reached the conclusion that the serious and important work which is to be done in the Harvard Medical School in connection with pathology and bacteriology would have most strongly commended itself to the personal interest and wise judgment of my deceased husband, who was always deeply interested in promoting opportunity for sincere and earnest work in the best fields of labor."

With its previous endowments and all these new gifts, with funds promised by the University itself, and with its present land and buildings at a very moderate valuation, the Harvard Medical

School may be considered as having at its disposal \$4,950,000 applicable to the plans for its future development. It is now hoped to raise contributions for a new building for the dental school.

A list of contributors to the medical fund is appended:

Miss Mary S. Ames, \$5,000; Oliver Ames, \$5,000; C. W. Amory, \$10,000; anonymous, \$100; anonymous, \$10,000; C. F. Ayer, \$50; Robert Bacon, \$25,000; Francis Bartlett, \$10,000; Franklin H. Beebe, \$1,000; Mrs. S. Parkman Blake, \$10,000; John L. Bremer, \$10,000; Mrs. John L. Bremer, \$5,000; Miss Sarah Bremer, \$5,000; George P. Brigham, \$100; Shepherd Brooks, \$1,000; Peter C. Brooks, \$1,000; I. T. Burr, \$1,000; Walter C. Cabot, \$5,000; Mrs. Charles P. Cheney, \$250; Mrs. E. S. Cheney, \$1,000; W. Murray Crane, \$5,000; George F. Fabyan, \$25,000; Mrs. William H. Forbes, \$5,000; Frederick Guild, Jr., \$50; Charles Head, \$1,000; Augustus Hemenway, \$15,000; Francis L. Higginson, \$60,000; George Higginson, \$10,000; Henry L. Higginson, \$10,000; James J. Higginson, \$10,000; John Hogg, \$1,000; H. S. Howe, \$1,000; H. H. Hunnewell, \$12,500; Walter Hunnewell, \$2,000; Mrs. Collis P. Huntington, \$250,000; C. C. Jackson, \$1,000; Eben D. Jordan, \$5,000; Harris Kennedy, \$100; David P. Kimball, \$5,000; Gardiner M. Lane, \$1,000; Amory A. Lawrence, \$1,000; Elliott C. Lee, \$25,000; Joseph Lee, \$5,000; Arthur T. Lyman, \$5,000; Mr. and Mrs. Charles Merriam, \$2,000; G. H. Monks, \$1,000; Mrs. Leopold Morse, \$100; Parkinson & Burr, \$1,000; F. H. Peabody, \$1,000; Sumner B. Pearmain, \$100; W. L. Richardson, \$25,000; Stephen Salisbury, \$1,000; Dr. and Mrs. Frederick C. Shattuck, \$50,000; Mrs. G. H. Shaw, \$1,000; David Sears, \$25,000; Mrs. Knyvet W. Sears, \$200; Miss Mabel Simpkins, \$200; Francis Skinner, \$5,000; W. D. Sohler, \$1,000; John T. Spaulding, \$10,000; W. S. Spaulding, \$10,000; James Stillman, \$100,000; Moorefield Storey, \$500; Nathaniel Thayer, \$25,000; Mrs. Charles Van Brunt, \$100; James C. White, \$625; Mrs. Henry Whitman, \$250.

#### NEW YORK.

**MORTALITY STATISTICS.**—The reports of the Health Department show that during the month of February the mortality in the city represented an annual death-rate of 21.79 against 20.08 in January and 19.77 in the month of February last year. The corrected death-rate for February, 1902, excluding non-residents and infants under one week old, is 20.86. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from scarlet fever increased from 25.75 in January to 34 in February; of deaths from measles, from 24.25 to 34.75; of deaths from smallpox, from 9.25 to 12; of deaths from whooping cough, from 8.75 to 11.75; of deaths from pneumonia, from 202 to 218.75; of deaths from phthisis, from 187 to 184.25; of deaths from influenza, from 7.25 to 8.75; of deaths from cancer, from 41.5 to 44; and of deaths from diseases of the urinary system, from 124.25 to 127.5. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from diphtheria and croup decreased from 50 to 47.75; of deaths from typhoid fever, from 11.5 to 5.75; and of deaths from bronchitis, from 65.5 to 61. During the week ending March 1 one death was reported from Cæsarian section.

**BILL RELATING TO SUPERVISION OF INSANE.**—At a meeting of the Medical Association of the Greater City of New York, held March 10, a resolution was unanimously adopted advocating the immediate passage by the legislature of a supply-

mental bill amending lunacy bill No. 368, recently enacted, which abolishes the positions of the two medical superintendents at the Manhattan State Hospital for the Insane on Ward's Island, New York, and places the two offices under one head; thus putting over 4,000 insane patients under one management. The supplemental bill provides for the restoration of these positions, so that the divisions of the hospital departments as they have heretofore existed, one for males and one for females, may be maintained. In presenting the resolution Dr. L. L. Seaman read a letter addressed to the governor of the State, and signed by Drs. A. Jacobi, F. P. Kinnicutt, M. Allen Starr, Francis Delafield, Charles McBurney, W. T. Bull, E. L. Keyes, and other prominent physicians, which urgently protested, from a professional point of view, against the placing of over 4,000 insane patients under the care of a single medical superintendent. The letter went on to say: "Moreover, we should greatly deplore the loss of either of the two superintendents now in charge of the two hospitals on Ward's Island. The loss of either would be a loss to the State. Dr. Macdonald, the senior officer, with his fine record of thirty-two years' service, would, of course, have prior claim to the place; but we sincerely hope that you will find a way to continue the present divisions of two hospitals."

**HOUSE OF REST FOR CONSUMPTIVES.**—The House of Rest for Consumptives has just purchased for \$75,000 two mansions, connected by a *porte cochère* and surrounded by extensive grounds, at Inwood, on the Hudson. This institution, which was organized in 1869, was formerly located at Tremont, in what is now the borough of the Bronx, but some years ago this property was given up, and since then it has been connected with St. Luke's Hospital. Under a contract with the managers of the hospital a certain number of beds for both men and women, in separate wards, were maintained for tuberculosis patients. This was always regarded, however, as only a temporary arrangement, adopted for the sake of expediency. The House of Rest for Consumptives already has an endowment fund of nearly \$500,000, and it is now purposed to raise this, if possible, to \$1,000,000.

**REPLY TO GOVERNOR ODELL'S CHARGES.**—The members of the Board of Managers of the Manhattan State Hospital for the Insane, of which the Hon. Henry E. Howland was president, who, together with the members of all the other boards of State hospitals, have recently been legislated out of office, have just made public their reply to certain charges made by Governor Odell. In the beginning of the reply the governor is arraigned for constituting himself both accuser and

judge in giving publicity to charges without making an investigation. After taking up *seriatim* and answering the various specifications of dereliction in the charges, the document concludes as follows: "The Manhattan State Hospital Board does not claim that the law nor the board's fulfillment of it has been free from imperfections, but it does deny, with emphasis and with a sense of official injury, the charges made by Governor Odell, both in general and in particular."

**COMPULSORY VACCINATION BILL OPPOSED.**—At a meeting of the Board of Health held March 13, the following resolution was adopted and forwarded to the Assembly Committee on Cities at Albany. The opinion of the Board of Health of New York City is that the passage of any bill requiring compulsory vaccination is unwise and uncalled for. President Lederle and the members of the bureau of contagious diseases have stated that they meet with little serious opposition in their efforts to vaccinate the people of the city, and that they believe that a compulsory vaccination law would be a powerful weapon in the hands of antivaccinationists. During the week ending March 16, 50,000 vaccinations (of which 30,000 were in the borough of Manhattan) was the record of the vaccinating corps.

**POLLUTION OF BROOKLYN WATER SUPPLY.**—Dr. J. H. Raymond, sanitary superintendent of the borough of Brooklyn, has forwarded to the president of the Board of Health a report prepared by C. P. O'Connor, chemist of the local department, showing a considerable pollution of Brooklyn's water supply. From a recent investigation of the watershed supplying the Ridgewood reservoir it was found that the tributary streams had overflowed into thickly populated tracts, and an analysis of the water taken at various points along the line of these streams disclosed unmistakably an organic pollution. Accompanying the report Dr. Raymond submitted a recommendation for the establishment of a sanitary patrol similar to one maintained when Brooklyn was a separate city.

**SMALLPOX IN ORANGE, NEW JERSEY.**—Statistics prepared by the Health Department of Orange, N. J., show that of the 52 cases of smallpox reported in that city during the past winter, in 49 the patients had either never been vaccinated or had not been vaccinated for twenty-five years or more. The remaining three patients had not been vaccinated in seven years.

**HOSPITAL FOR CONTAGIOUS DISEASE.**—The legislature has passed a bill providing for the establishment, and appropriating \$500,000 for the erection, of a public hospital in the Bronx borough, which shall be provided with accommodations for the reception of cases of contagious disease.

**SMALLPOX IN INSTITUTIONS.**—Cases of smallpox have recently been discovered in both the Tombs Prison, New York, and the Westchester County Jail at White Plains, N. Y. All the prisoners (numbering 392 in the Tombs) and attendants were promptly vaccinated.

### ARMY NOTES.


**WORK OF THE CIVIL BOARD OF HEALTH IN THE PHILIPPINES.**—Since the establishment of this board suitable medical and sanitary laws for the islands have been drafted, in addition to the performance of its routine duties. So far, bills have been submitted to the commission for the practice of medicine, dentistry, pharmacy, veterinary surgery, embalming and undertaking, for provincial and municipal boards of health, for the control of leprosy, the manufacture and sale of liquors, and many others. Of these, a number have already become laws, and the remainder will come up for consideration in the early future. A board of examiners for persons desiring to practise medicine in the islands is now in session, and it is hoped to place medical standards on as high a plane as obtains in the United States. Matters now receiving consideration are the organization of provincial and municipal boards of health, a system of compulsory vaccination, and the installation of the pail system of disposing of excreta in Manila.

**ANOMALOUS MILITARY POSITION OF CONTRACT SURGEONS.**—As illustrating the anomalous military position of army contract surgeons and contract dental surgeons, neither of whom are commissioned officers, though responsible for the discipline and control of the enlisted men under their direction and care, it has recently been found necessary in the Philippines to issue an order requiring that these surgeons receive the military salute and proper respect from enlisted men. In no other branch of the military service would such an indeterminate status on the part of the personnel be tolerated for an instant, and its existence in the Medical Department is a severe blow to the administrative efficiency of the latter and the self-respect of the excellent class of civilian physicians serving under contract with troops.

**A SURGEON AS SOLDIER.**—Capt. Harry L. Lemen, assistant surgeon, with two infantry privates, trailed a small party of Filipino insurgents into the swamps near San Felipe Laguna on the night of Jan. 1 and captured three insurgent officers armed with revolvers. This was considered a very daring feat, as the chances were favorable for the Americans being ambuscaded and killed by the insurgents.

### METEOROLOGICAL RECORD

For the week ending March 8, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity.			Direction of wind.		Velocity of wind.		Weather		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S....2	29.36	47	55	39	100	83	92	S E	S W	2	27	O.	O.	.13
M...3	29.54	42	48	35	77	71	74	W	W	16	16	O.	O.	
T...4	29.84	36	40	32	74	43	58	W	W	17	18	O.	O.	
W...5	29.80	31	34	28	50	100	75	N E	N W	5	30	O.	N.	.65
T...6	29.92	32	37	27	83	49	66	N W	N W	15	9	O.	O.	.14
F...7	30.25	38	51	26	48	46	47	S W	S W	12	14	O.	O.	
S....8	30.50	39	42	36	68	78	73	N E	E	8	19	O.	O.	
	29.89	44	32			69								.92

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
 Mean for week.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 8, 1902.

CITIES.	Population * Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Diarrheal diseases.	
New York . .	3,065,852	1,404	464	25.14	16.38	2.27	.36	3.85	
Chicago . .	1,852,828	514	163	22.17	15.95	3.11	1.36	3.65	
Philadelphia .	1,349,624	508	139	20.00	20.88	2.17	2.31	.59	
St. Louis . .	603,717	—	—	—	—	—	—	—	
Baltimore . .	525,330	192	48	18.23	15.11	—	—	2.08	
Cleveland . .	411,826	—	—	—	—	—	—	—	
Buffalo . .	376,742	—	—	—	—	—	—	—	
Pittsburg . .	341,401	150	43	20.00	22.00	.66	3.33	—	
Cincinnati . .	332,082	—	—	—	—	—	—	—	
Milwaukee . .	304,975	—	—	—	—	—	—	—	
Washington .	289,537	—	—	—	—	—	—	—	
Providence . .	185,870	84	21	13.09	25.42	1.19	2.38	—	
Boston . .	588,736	230	66	23.04	23.47	3.04	.87	2.17	
Worcester . .	127,387	30	8	6.67	10.00	—	—	3.33	
Fall River . .	111,872	—	—	—	—	—	—	—	
Lowell . .	99,574	36	10	16.67	25.00	—	—	—	
Cambridge . .	90,384	27	5	14.80	14.80	—	—	—	
Lynn . .	71,144	20	3	20.00	20.00	—	—	—	
Lawrence . .	67,275	15	8	40.00	13.33	6.66	—	6.66	
Springfield .	66,854	15	2	13.33	26.67	—	—	—	
Somerville . .	65,882	22	5	13.63	27.27	—	4.54	—	
New Bedford .	65,574	22	13	18.18	27.27	—	—	—	
Holyoke . .	48,065	—	—	—	—	—	—	—	
Brockton . .	43,208	15	2	—	—	—	—	—	
Haverhill . .	40,392	8	1	12.50	37.50	—	—	—	
Salem . .	36,567	10	2	20.00	—	—	—	—	
Newton . .	36,336	5	2	20.00	40.00	—	—	20.00	
Malden . .	35,390	9	1	11.11	—	—	—	—	
Chelsea . .	35,264	17	4	29.40	—	5.88	—	—	
Fitchburg . .	33,848	9	3	—	11.11	—	—	—	
Taunton . .	32,759	2	—	—	50.00	—	—	—	
Everett . .	27,114	6	1	—	—	—	—	—	
North Adams .	26,583	8	3	50.00	—	25.00	—	—	
Gloucester . .	26,121	6	1	33.33	—	—	—	—	
Quincy . .	25,307	12	4	33.33	16.67	—	—	8.33	
Waltham . .	24,612	6	1	16.67	33.34	—	—	—	
Pittsfield . .	22,311	4	—	—	25.00	—	—	—	
Brookline . .	21,679	—	—	—	—	—	—	—	
Chicopee . .	20,390	8	2	12.50	25.00	—	—	—	
Medford . .	20,014	6	1	—	33.33	—	—	—	
Newburyport .	14,478	2	1	—	50.00	—	—	—	
Melrose . .	13,384	4	—	—	25.00	—	—	—	

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,446; under five years of age, 1,036; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal

diseases, whooping cough, erysipelas, fevers and consumption 761, acute lung diseases 614, consumption 412, scarlet fever 35, erysipelas 13, typhoid fever 34, whooping cough 25, cerebrospinal meningitis 16, smallpox 30, measles 39, diarrheal diseases 82.

From whooping cough, New York 15, Chicago 5, Baltimore 1, Boston 1, Lowell 2, Northampton 1. From cerebrospinal meningitis, New York 8, Pittsburg 1, Boston 2, Lynn, Somerville, Gloucester, Southbridge and Watertown 1 each. From scarlet fever, New York 21, Chicago 10, Philadelphia, Pittsburg, North Adams and Marlboro 1 each. From erysipelas, New York 5, Chicago 2, Philadelphia 2, Baltimore 1, Boston 2, Worcester 1. From smallpox, New York 10, Philadelphia 11, Boston 6, Cambridge, Lawrence and Quincy 1 each.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending Feb. 22, the death-rate was 24.4. Deaths reported 6,959; acute diseases of the respiratory organs (London) 885, whooping cough 139, diphtheria 99, measles 145, smallpox 69, scarlet fever 49.

The death-rate ranged from 13.4 in Derby to 36.2 in Merthyr Tydfil; London 24.4, West Ham 26.7, Croydon 23.4, Brighton 23.0, Portsmouth 14.7, Southampton 19.8, Bristol 22.0, Birmingham 24.6, Leicester 19.3, Nottingham 17.6, Birkenhead 21.8, Liverpool 27.3, Manchester 26.8, Salford 22.6, Bradford 17.8, Leeds 20.3, Sheffield 19.0, Hull 18.0, Newcastle-on-Tyne 29.8, Cardiff 20.4.

#### SOCIETY NOTICE.

SUFFOLK DISTRICT MEDICAL SOCIETY.—There will be a regular meeting of the Section for Obstetrics and Diseases of Women in Sprague Hall, Boston Medical Library Building, 8 The Fenway, March 26, 1902, at 8.15 p.m.

Papers: Dr. F. H. Davenport, "The Present Status of the Pessary in the Treatment of Displacements of the Uterus"; Dr. W. H. White, "Electricity, its Use in Gynecology." Dr. George Haven will report a number of interesting laparotomies.

W. H. GRANT, Secretary.

#### RECENT DEATHS.

JONATHAN WOODWARD GOODELL, M.D., M.M.S.S., died in Lynn, March 12, 1902, aged seventy-two years.

Dr. J. W. GOODELL, one of the oldest physicians in Lynn, Mass., had practised his profession forty-six years, with more than ordinary success, first at Greenwich and since 1866 at Lynn, Nahant, Swampscott and neighboring towns. Dr. Goodell was a member of the American Medical Association and of the Massachusetts Medical Society, of which he was at one time one of the counsellors. For two years he was president of the Essex South Medical Association.

ALBERT RIPLEY LEEDS, for many years professor of chemistry in the Stevens Institute at Hoboken, N. J., died in Philadelphia on March 13 from cancer of the stomach. He was about sixty years of age, had a national reputation as a chemist, and was the author of many scientific papers. He was especially held in repute as an authority on water supply and pollution. Since 1872 he had been the chemist of the Water Boards of Newark and Jersey City, and he had also held the same position from a number of other cities. Only a few weeks before his death he resigned his professorship at Stevens Institute, on account of the condition of his health, and in doing so he presented to the college his valuable library. Professor Leeds was one of the original seven members of the faculty when the Institute was started in 1871, and so great was his interest in its welfare that he heroically concealed his intense suffering, and persisted in attending to his duties up to the last possible moment.

#### BOOKS AND PAMPHLETS RECEIVED.

A Letter from Germany. Homeopathy on the Continent. By Horace Packard, M.D. Reprint. 1901.

Human Embryology and Morphology. By Arthur Keith, M.D. (Aberdn.). F.R.C.S. (Eng.). Illustrated. London: Edward Arnold. 1902.

Vaccine Virus, with Special Reference to the Dangers of Glycerinated Lymph. By F. J. Runyon, M.D., Clarksville, Tenn. Reprint. 1902.

The Uses of Tuberculin. By Charles Denison, A.M., M.D., Denver, Colo. Reprint. 1901.

Annual Report of the New York State Reformatory at Elmira, for the Fiscal Year ending Sept. 30, 1901. Twenty-sixth Year Book. Illustrated. 1901.

Implantation of a Gold Ball for the Better Support of an Artificial Eye. By L. Webster Fox, A.M., M.D., Philadelphia. Illustrated. Reprint. 1902.

Vernal Conjunctivitis. By L. Webster Fox, A.M., M.D., Professor of Ophthalmology in the Medico-Chirurgical College, Philadelphia, Pa. Reprint. 1901.

Eleventh Annual Report of the State Board of Medical Examiners of New Jersey. 1901. Trenton, N. J.: MacCrellish & Quigley, State Printers. 1902.

Reports of the Trustees and Superintendent of the Butler Hospital. Presented to the Corporation at its Fifty-Eighth Annual Meeting, Jan. 22, 1902, Providence, R. I. Illustrated. The Providence Press: Snow & Farnham. 1902.

Obscure Diseases of the Urethra. By E. Hurry Fenwick, F.R.C.S. (Eng.), with special chapters on Urethral Carcinoma and Calculus. By J. W. Thompson Walker, M.B. (Edin.), F.R.C.S. (Eng.). Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

A New Localizer for Determining the Position of Foreign Bodies in the Eye by the Roentgen Rays. By L. Webster Fox, A.M., M.D., of Philadelphia, Professor of Ophthalmology, Medico-Chirurgical College, Philadelphia, Pa. Illustrated. Reprint. 1902.

Diseases of Women, a Manual of Gynecology, designed especially for the use of Students and General Practitioners. By F. H. Davenport, A.B., M.D. Fourth edition, revised and enlarged. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

The Accessory Sinuses of the Nose, their Surgical Anatomy and the Diagnosis and Treatment of Their Inflammatory Affections. By A. Logan Turner, M.D. (Edin.), F.R.C.S. Ed. Illustrated. New York: Longmans, Green & Co. Edinburgh: William Green & Sons. 1902.

On the Alterations Produced in the Large Intestines of Dogs by the Ameba Coli, by Heat, and by Various Chemic Substances, with Notes on the Anatomy and Histology of This Viscus. By H. F. Harris, M.D., Atlanta, Ga. Illustrated. Philadelphia: Printed for the College. 1901.

A Manual of Practical Anatomy. By the late Prof. Alfred W. Hughes, M.B., M.C. (Edin.), F.R.C.S. (Edin.), F.R.C.S. (Eng.) Edited and Completed by Arthur Keith, M.D. (Aberdn.), F.R.C.S. (Eng.) In three parts. Part I. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1901.

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## Original Articles.

THE SUTURE OF ARTERIES.<sup>1</sup>

BY J. O. HUBBARD, M.D., BOSTON.

*Third Assistant Visiting Surgeon, Boston City Hospital; Surgeon to Out Patients, Carney Hospital; Assistant Surgeon to Out Patients, Infants' Hospital.*

THE suture of blood vessels is no new attempt of the surgeon to enter unexplored fields, for in 1762 Lambert put stitches into the artery of a horse, and at about the same time Hallowell sutured the brachial in man. The operation then fell into disrepute from the unsuccessful experiments of Assman in 1773. No more attempts were made till after the discovery of antiseptic methods, when in 1881 Czerny sutured the internal jugular vein in man. The suture was a success, though the patient died from other causes. From this beginning the repair of injuries to veins came to be more and more generally employed, until in 1892 Schede was able to report twenty-five to thirty successful vein sutures of his own, including one of the inferior cava.

Meanwhile, however, the repair of arteries seems not to have been so generally attempted and little, comparatively, was done. This conservatism was due partly, without doubt, to the fear of the formation later of an aneurism at the site of the suture, or of an endarteritis with thrombosis, but principally to the failure of the experiments on animals carried out by Gluck in 1882 and Horoch in 1888. Gluck reported a series of nineteen failures due to uncontrollable bleeding from the stitch holes, and Horoch found in all his cases a thrombus filling the vessel at the region of the suture.

In 1889, however, Jassinowsky published a series of successful experiments, proving the fears of the older surgeons completely groundless. It seems to be due to his work that the operation has been brought out of disfavor, for his experiments were carried out most satisfactorily. His animals were killed at varying intervals from one hour to one hundred days after the operation, and some of the specimens were examined microscopically. In all his cases but one the lumen of the vessel was open. In this one the wound about the vessel was septic and a thrombus partially occluded the artery. In none of the cases was there any tendency to the formation of an aneurism. On the contrary, the vessel wall was thickened and in some the lumen was somewhat narrowed.

He formulated a few rules, following which would ensure a successful result. The wound in the vessel wall must be smooth, not bruised or covered with adherent clots; the suture must pass through only the adventitia and media, and any bleeding through the stitch holes must be controlled by pressure for a few moments.

The next great step was made by Murphy in 1897, who found by experimentation that when

an artery is cut more than one-half across it is best to adopt his invagination method (which I will describe later) and not try to suture it, for in a cut of such magnitude the vasa vasorum are so destroyed that there is fear of slight necrosis of the vessel wall and secondary hemorrhage. Under such circumstances he resects that bit of the artery and invaginates the proximal into the distal portion.

His method is as follows: Two or three double-headed sutures are inserted into the proximal portion, including only the two outer coats of the artery. These are then reinserted at regular intervals, one-third to one-half of an inch above the end of the distal portion, from within outward. The threads are then tied, invaginating the artery as they are pulled tight. In order to facilitate the invagination, a small incision, from one-third to one-fourth of an inch in length, is made, par-

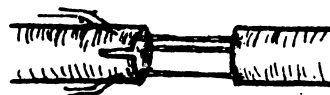


FIG. 1.



FIG. 2.

MURPHY'S INVAGINATION METHOD.

FIG. 1. First step in operation. FIG. 2. Completed operation.

allel to the long axis of the vessel. Four or five interrupted sutures are then inserted into the intussusciptions, binding it to the surface of the intussusceptum, the sutures in the latter including only the adventitia and media. By this method a large surface contact of the vessel wall is secured, ensuring a more safe healing and less chance of hemorrhage, as the greater the arterial pressure the closer pressed together are the vessel walls. He reports a number of experiments and two actual cases.

Dörfler then took up the subject with the hopes of deciding some of the disputed questions as to the best suture material and method of controlling the circulation during the operation, etc. He thoroughly, it seems to me, worked out their answers. Before his experiments, everyone had felt it very necessary not to injure the intima by the clamps or ligatures which control the circulation during the operation, feeling that a thrombus was sure to form at the site of the injury. Dörfler showed that it was safer to control the circulation with such light pressure, that the intima could not be injured, and also that a bruise or tear of the lining coat would not necessarily cause the formation of a thrombus. In other words, an injury to the intima is of no consequence in itself, but that interference with the circulation and infection are the principal causes of trouble, and that injury to the intima is a favoring factor only. He realized that the operation was rendered more difficult and retarded by limiting the sutures to the two outer coats of the

<sup>1</sup> Read before the Surgical Section of the Suffolk District Medical Society, Jan. 8, 1902.



artery wall, so he passed his stitches through the whole thickness with perfectly satisfactory results. Those who opposed this suture through all three coats did so from fear that the foreign substance in the vessel would cause endarteritis and thrombosis, that the injury to the endothelium necessarily caused by the sutures would interfere with the healing of the intima, and that bleeding might easily occur through the stitch holes, which might be enlarged by an increase in the blood pressure. Dörfler found that these fears were practically without foundation. In sixteen artery sutures which he did twelve included the intima and four only the adventitia and media. In one of each a thrombus formed. These were the first two experiments he did and the clot formation was due to faulty technique. He collected from various sources forty-three experiments where the intima was included in the suture, with thrombus formation in but five, and these five failures were said not to be due to the method itself, and, furthermore, there have been five entirely successful cases in men where all the coats were included, without any thrombus formation. After five to eight weeks nothing is to be seen of the sutures, and a thickening of the artery wall with a slight prominence of the intima alone indicates their position. The advantages of the suture through all the coats are its easy application, its adaptability to thin-walled vessels, and the certainty that the suture passes deep enough not to tear out, as might happen if one were trying to include only the two outer coats. He considers that very fine silk is the best suture material.

Jacobsthal hardened some of Dörfler's specimens and examined them microscopically. He found that the wound separation of the vessel wall is filled with blood and fibrin which extend into the perivascular tissue. In a few days a thickening of the endothelium occurs, which surrounds the sutures and shuts them off from the lumen of the vessel. Soon a new growth of cells and blood vessels forces its way into the blood clot, which becomes more or less organized. From this comes a cellular growth end—mesoperiarteritis. Next, a retrograde process appears, in which the cells decrease in number, with fibres between them, and become poorer in protoplasm. The growth in the adventitia and media is principally connective tissue, with rarely some elastic elements, while in the intima the new growth is exceptionally rich in fine elastic lamellæ and fibres, which may go on to the formation of a sort of second elastica in the neighborhood of the scar. The sutures lying in the lumen are entirely shut off by the thickening of the intima and covered by endothelium. In the adventitia they become surrounded by granulation tissue and giant cells. There is no formation of new muscle fibres.

The work up to this point of repairing an injury to an artery has been carried on without any mechanical aids. In 1894, however, Abbé carried out some experiments, inserting glass

tubes into the arteries. After finding the tube plugged by a clot in his first case, the circulation having been carried on by the collateral branches, he put one into the aorta of a cat, thinking that there the collateral circulation would not be sufficient if the tube became plugged. He showed the cat four months later at a medical meeting, feeling sure that the tube and aorta were patent.

In 1900 Payr published an account of two new methods in which mechanical devices play an important part, similar to that of the Murphy button in intestinal anastomosis. He says that his experimental results have been satisfactory, but fails to describe any of them. For the first method



FIG. 1.



FIG. 2.



FIG. 3.

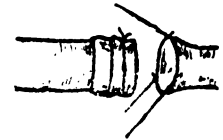


FIG. 4.



FIG. 5.

## PAYR'S FIRST METHOD.

FIGS. 1, 2, 3, 4. Succeeding steps in operation. FIG. 5. Completed anastomosis.

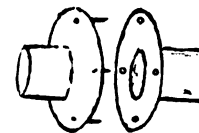


FIG. 1.

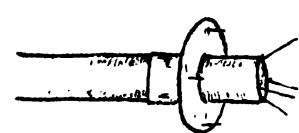


FIG. 2.

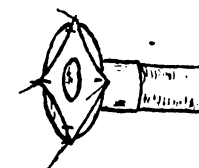


FIG. 3.

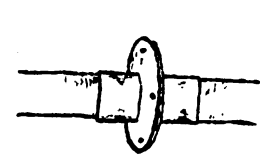


FIG. 4.

## PAYR'S SECOND METHOD.

FIGS. 1. Male and female cylinders. FIG. 2, 3. Steps in operation. FIG. 4. Completed anastomosis.

a cylinder with a groove near one end is necessary. Through this the proximal end of the artery is drawn by pulling on sutures passed through its end. The vessel is then turned back over the cylinder and held by a ligature fitting into the groove. The distal end of the artery is then stretched by means of sutures in its end and pulled over the proximal end and the cylinder. Another ligature holds this in place. Thus intima is brought into contact with intima. For his second method he uses a male and female cylinder, the male having four pegs and the female four holes. The end of the artery is drawn

through the male cylinder and pulled out so that it is caught on the pegs, the intima being thus turned out. The peripheral end is then drawn through the female cylinder and pulled out in a similar way, so that when the two cylinders are joined the intima of one end is fastened against the intima of the other. The cylinders in both methods are made of magnesium, which was found to be absorbed in a short time.

There are a few points about the technique of any repair operation on an artery which are almost self-evident, but might be overlooked unless one had thought about this branch of surgery. In the first place, absolute asepsis is necessary, for any infection about the wound makes the likelihood of thrombus formation the greater. The circulation must be controlled sufficiently far away from the injury to give room to work, and especially far away if a resection is to be done, for an artery when cut across retracts a long way. The circulation may be controlled by clamps armed with rubber, instruments made for this particular purpose, bands of gauze or the finger. No matter what means is used it must be with the slightest pressure possible, to prevent any more bruising than necessary. The vessel wall must be handled as little as possible. The suture must just fill the hole made by the needle, and both needle and suture must be the finest that can be handled. All clots must be wiped from the wound in the artery. A continuous suture is recommended because it minimizes the handling, and is quicker than an interrupted one, and because it always leaves a thread with which to hold the vessel wall away from the opposite one that a stitch may not include both. After the suture is complete the compression must be taken first from the distal end of the artery. This will let the blood flow back and test the suture before allowing the full blood pressure against the stitches by taking off all compression. If there is any real bleeding the circulation can be again controlled and more stitches put in. If there is only an ooze it can be stopped by gauze pressure for a moment or two. Suturing the sheath of the vessel is recommended, not so much because it strengthens the artery wall, as because it makes a barrier to any sepsis which may occur in the superficial part of the wound.

The field for the suture of arteries is necessarily rather small. It is suitable only when the vessel walls are healthy, and would be of no use in calcified arteries or a secondary hemorrhage where the vessel is bathed in pus. It is particularly serviceable in wounds of large arteries, such as the femoral or brachial, where a sudden tying of the vessel might possibly cause gangrene. The most favorable cases are those where the wound is made at the time of an operation. However, any clean cut wound can be sutured and ragged ones resected, if not involving too great a length. This suturing of arteries is adaptable to the treatment of traumatic and dissecting aneurisms.

The prognosis seems to be fairly good, though of course the procedure is still in its infancy.

Even if the suture itself is a failure through obliteration of the lumen, the operation may still be a success as far as the object for which it was undertaken is concerned, for as the closure of the vessel is slow, the collateral circulation has time to adapt itself to the new strain. There seems to be no danger of a bit of clot being washed away by the blood stream from the line of suture and causing trouble farther on, for in none of the cases or experiments was anything of this sort found, and as many of them were on the carotids a cerebral embolism with symptoms would certainly have occurred. The danger of the formation of an aneurism at the site of the suture seems to be slight, none having occurred in either experiments or actual cases. The longest experiment lasted, however, but 100 days, and in a 37 day old femoral suture there was a little out swelling, but not really enough to be called an aneurism, and it was considered probably due to the retraction of the scar in the surrounding tissues.

I have been able to collect up to the present date twenty recent operations on arteries, which I will briefly mention to show the practical value of this procedure :

1. Durante, 1892. Tibial artery wounded during removal of chondrosarcoma; catgut sutures through adventitia and media. Next year amputation for recurrence. Artery then found without any change except a narrowing at site of suture.
2. Durante, 1892. Amputation breast; axillary artery wounded; catgut sutures.
3. Rosa, 1892. Suture of wound in brachial 7 mm. long, including only two outer coats.
4. Heidenhain, 1894. Wound of axillary artery while dissecting glands in axilla; catgut sutures.
5. v. Zoege Manteuffel, 1895. Wound of femoral while operating on arteriovenous aneurism; sutured.
6. Israel, 1895. Common iliac injured during a perityphilitic operation; silk sutures through all layers.
7. Seabaujeff, 1896. Embolus in femoral artery from ulcerative endocarditis; gangrene threatened. An attempt was made to remove the embolus, but patient too weak to permit Seabaujeff to carry out his whole plan. The artery, however, was opened and sutured. Nineteen days later patient died from the endocarditis and a spindle thrombus was found along the opening in the intima.
8. Orlow, 1896. Wound in popliteal artery sutured through all the layers; additional stitches through adventitia and connective tissue; amputation later, when artery found patent but narrowed.
9. Murphy, 1897. Bullet wound of thigh; two small aneurismal sacs of femoral; one-half inch of femoral artery resected; proximal end invaginated into distal, the adventitia having been peeled off proximal; after the invagination it was pulled down over the line of suture and fastened there; the suture also of femoral vein.
10. Lindner, 1898. Femoral artery wounded during an operation for intestinal resection; suture with silk through all the coats; safety stitch through the adventitia.
11. Garré, 1898. Internal carotid injured during removal of cancerous glands; silk sutures through adventitia and media.
12. Garré, 1898. Wound of upper arm day before entrance to the hospital; wound of brachial artery sutured through all coats. After operation pulse and color returned to hand, which before had been pulseless and cyanotic.
13. Gérard Marchant, 1898. Arterial suture of humeral for arteriovenous aneurism. Doubtful result.

14. Richard, 1899. Axillary artery wounded during operation on axilla; catgut sutures.

15. Cammaggio, 1899. Wound of femoral artery; suture through all the coats.

16. Kimmell, 1900. Four to five centimetres of femoral artery resected, because involved in cancerous growth; proximal end invaginated into distal.

17. Seggel, 1900. Artery wounded in neck by would-be suicide; silk sutures through adventitia and media; jugular vein also sutured.

18, 19. Pacha, a Russian, is reported to have done two cases by the Murphy method on the axillary artery.<sup>2</sup>

20. Peugniez. Suture of artery for arteriovenous aneurism. I could not get the journal in which this article was published, and therefore can give but the title.

When Dr. Lund spoke to me about writing this paper, I at first was tempted to decline, realizing that anything new which I might have to say should be supported by many experiments; but later, I felt that collecting and bringing up to date the literature of the subject might possibly not be without interest and might serve to awaken some discussion. I was glad of the chance to read a paper of this sort for another reason, that I might have an opportunity to urge upon those in charge of the new medical school the great need in Boston of a proper place in which to carry on such original experiments as are necessary in a subject of this sort.

Last spring I became interested in this branch of surgery, and, after having thought about it for awhile, decided that possibly I might add a little to its advance. To do this, many experiments should be carried out. At present there is no opportunity for such work either at the Harvard Medical School or the hospital laboratories in Boston. Finally, I got a chance to work at one of the veterinary hospitals in the city, where the surgeons were most kind and thoughtful. The opportunity for aseptic work was, however, very slight, and the expense of keeping a number of dogs would have amounted to so much that I was forced to give up all my schemes. I sincerely hope that accommodations for such work will be made in the new school, that Boston may not be behind in the advance of experimental surgery.

I hoped to show by experimentation that transplantation of arteries was possible, for if an artery can be entirely divided and then sutured successfully, why can it not be stitched to another trunk? To accomplish this a lateral implantation would be necessary. If this proved possible, I had an idea that possibly in a certain number of abdominal aneurisms this procedure might be of some value.

Dr. Jones was kind enough to help me with the few experiments I did. As the technique of artery suture seemed rather hard, we started in on a simple operation.

I. *Large black dog*.—Right carotid dissected free. Circulation controlled by bands of gauze pulled about the artery and held tight by hemostatics. A longitudinal incision of about one-third of an inch was made in the artery. The incision was closed by fine silk interrupted sutures. Loos-

ening the distal gauze showed a leak in the suture line. The gauze was tightened again and another stitch put in. This procedure had to be repeated again before the leaking was controlled. There was still a little oozing, which entirely stopped after compression. The blood then passed freely though the sutures seemed slightly to constrict the vessel.

A week later we killed the dog by trying to tie a glass tube into his aorta. The carotid was found somewhat adherent to the surrounding structures. The stitches were scarcely discernible on the inside of the vessel. There appeared to be a very small parietal thrombus at one end of the cut, and there was a thread of what seemed like fibrin free in the lumen. The calibre of the vessel did not seem to be altered.

II. *Irish terrier*.—Left carotid was dissected free and divided between two ligatures. Circulation was controlled by gauze bands as before. Longitudinal cut was made in each end and the corresponding edges were sutured with silk. When the distal gauze was loosened there was some leaking which was controlled by two more sutures. When both controlling gauzes were taken off there was no leaking. The pulsation proximal to the anastomosis was strong, distal to it weak, but distinct. The soft parts were joined by one stitch over the anastomosis. Five days later a more or less broken-down blood clot was let out.

Two weeks after the operation the dog was killed with chloroform. The carotid was dissected out. About the site of the suture there was a large fusiform mass, apparently an organized blood clot. Air could be forced through the anastomosis without any leakage. On section, the ends of the two portions of the artery at the anastomosis were filled with a soft blood clot. Although the air had passed freely, it was possible to find only a connection big enough to admit a hair.

III. A week before the dog was killed we did a similar operation on the left carotid, only in this case cutting out a portion of the artery wall, that the opening at the anastomosis might be larger. After the operation the pulsation distal to the anastomosis was stronger than it had been on the right, where only slits had been made in the artery, but still weaker than on the proximal side of the anastomosis.

When the dog was killed this specimen was a week old. As he died, there was a secondary hemorrhage. On dissection it was found that a stitch had given way. A clot was in the hole and extended into the artery. When this was removed a probe could be passed freely through the anastomosis.

My apology for presenting such imperfect results is the firm belief that if they can be obtained under the circumstances in which we worked, perfect ones can be reached when aseptic work is carried out. I trust that someone who has the opportunity will go on with this branch of surgery, for it certainly has a definite field of usefulness.

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A CONTRIBUTION TO THE STUDY OF CAT-GUT AS A SUTURE AND LIGATURE MATERIAL.<sup>1</sup>

BY HUGH CABOT, M.D., BOSTON.

THE extent to which absorbable suture materials have come into general use makes it of the first importance that we should have quite definite ideas in regard to the position which they hold as compared with the unabsorbable materials. The question of sterilization has called forth much able and thorough investigation, and upon it, at the present time, investigators are substantially in accord. It is, I think, generally accepted as proved that, by a considerable variety of methods, animal materials can be rendered sterile, and that danger of infection from their use is almost *nil*, or perhaps as nearly so as with any material at our command. While the question of sterilization has been closely studied, less attention has been paid to the behavior of these materials in the tissues, and little is known of their durability and of the length of time during which they retain sufficient strength adequately to hold the tissues in apposition. The views of surgeons differ widely in regard to the length of time during which their suture materials remain strong, and there is surprisingly little experimental evidence to be found upon this point. In view of this unsatisfactory dearth of information, the writer undertook an investigation to determine if possible the length of time during which catgut of various sizes and makes and of different methods of preparation retains its strength in the tissues.

It will, I think, be generally admitted that it is desirable that a suture material retain its strength for three weeks, and it is obviously unwise to use absorbable materials which are retained in the tissues much longer than is positively necessary. What we want in an absorbable material is that it shall remain strong for three weeks and then disappear as fast as possible, for where these materials are retained in the tissues for a great length of time, they are open to many of the same objections as the unabsorbable materials. We not very infrequently see catgut and animal tendon sutures

discharged through sinuses, showing that they have become foreign bodies, and that their absorption has been too slow to counterbalance the tendency of the tissues to sequester foreign material.

The process of absorption of catgut takes place by infiltration with round cells and polynuclear leucocytes, and the rapidity of the process depends largely upon the blood supply of the part. In tissues of poor blood supply and consequent low vitality, as subcutaneous tissues and fascia, the rapidity of infiltration is much diminished and absorption is therefore markedly slower, while in very vascular tissues the most rapid absorption takes place. These facts should be borne in mind in estimating the true durability of absorbable materials.

## METHODS OF INVESTIGATION.

In order to arrive as nearly as possible at uniform results, animals of the same variety have been used in all experiments, and sutures have been placed in an anatomically similar position. Rabbits were chosen because of their marked ability to withstand infection from the pyogenic organisms and on account of the ease with which they can be handled. For the benefit of our anti-vivisection friends, it may be here stated that all animals were completely etherized during the operation and were treated as surgical patients. All sutures were placed deep in the muscles of the hind leg, a region of free blood supply where absorption would be as rapid as in any part of the body, and were so arranged as to include a considerable bundle of muscular fibres and to be covered above and below by muscular planes. In order to have pieces of sufficient length to test their strength when removed, the gut was passed twice around the muscle selected and then knotted with the ends left long. The skin was closed with fine silk and a collodion dressing applied. Immunity from anything more than a mild skin infection was very marked, and in only three cases did any pus formation occur about the sutures. The materials used were plain catgut in sizes Nos. 0, 1 and 2, from makers Lee, Peak, Leavens, Van Horn and Countie. Chromicized catgut in the same sizes and from the same makers was also used.

## RESULTS.

Briefly stated, the results were as follows:

*Plain catgut.*—Prepared by heating under pressure in alcohol, a method very generally employed in the moist preparations. The strength of these materials when removed was estimated by an attempt to break them. When they could not be broken in short lengths of one and one-half to two inches, they were considered of full strength; when broken only with difficulty they were considered of good strength; when broken easily, worthless. No. 0, good strength at four weeks (two cases); No. 1, full strength four to six weeks (seven cases); No. 1, prepared by dry heat, nearly absorbed in three weeks (two cases);

<sup>1</sup> Read before the Surgical Section of the Suffolk District Medical Society, Jan. 8, 1902.

No. 2, unsterilized and not hardened, full strength four weeks (one case).

*Chromicized catgut.*—The following results include the product all makers considered together, as the methods of preparation do not differ widely. They are all prepared by the moist method and sterilized by superheating in alcohol in closed tubes; No. 0, little strength at four weeks (two cases); No. 0, moderate strength at six weeks (one case); No. 1, full strength five to eight weeks, present and of some strength eight to ten weeks (five cases); No. 2, full strength eight to twelve weeks, nearly absorbed sixteen weeks (four cases).

With a view to determining whether diminution in the strength of the solution of chromic acid or bichromate of potash would materially diminish the absorption time, some special gut was kindly prepared for me by Mr. Sampson, then with Countie & Co. Two sets were prepared, one with a solution one-half the usual strength for one hour as against the usual thirty hours, another with a solution one-quarter strength for one hour. These special preparations looked not unlike the regular material, but were somewhat lighter in color, though of the same strength and pliability. Both of these special preparations retained full strength for from three to four weeks as against five to eight weeks for gut prepared by the usual method (eleven cases).

The gut subjected to one-half strength solution retained some strength in the tissues from five to eight weeks (five cases), while that treated with one-quarter strength solution was absorbed in four to six weeks (six cases). These last experiments show that the catgut prepared with the weaker solutions retains its full strength for a somewhat shorter time, and that after the process of absorption has begun it is completed more rapidly.

Briefly stated, my conclusions are as follows: (1) That in rabbits chromicized catgut of No. 1 size is retained longer than is desirable in a suture material for surgical use; (2) that plain catgut of No. 1 size is retained a sufficient length of time; that is to say, a minimum of three weeks; (3) that that catgut prepared by dry heat is more rapidly absorbed than that prepared by moist methods; (4) that the time required for absorption increases very rapidly with the increase of size, as No. 2 gut took from two to three times as long to absorb as No. 1.

The question that now confronts us is that of correlating these results with the requirements of operative surgery. It is not possible to obtain any large number of clinical observations on the subject of buried suture material, and we must therefore take advantage of a few isolated observations. I have at present in my possession a piece of No. 1 chromicized gut which was removed from an abdominal sinus seven weeks after operation, and which at that time was apparently as strong as when applied. I have in three cases removed ligatures of No. 1 plain catgut from the subcutaneous tissues at intervals

varying from one week to ten days, and in all three cases the gut was apparently as strong as ever. In a number of cases in which No. 1 chromicized gut had been used to suture the superficial fascia in a laparotomy in a thin patient, the knots of the suture have been felt under the skin apparently as plainly as at the time of operation, after intervals varying from four to six weeks. It has been my feeling that catgut sutures placed in the skin were more rapidly absorbed than when entirely buried in the tissues, and I find that the same impression exists among other observers, though no absolute evidence has been introduced. Through the kindness of Dr. Porter and the house staff of the Massachusetts Hospital I was enabled to obtain records of a number of cases in which No. 2 plain catgut was used as a continuous skin suture. This material was so completely absorbed that it could be wiped off without the use of force after an interval varying from eight to fourteen days. The conditions prevailing in mucous membranes appear to be favorable to rapid absorption, and in a few cases No. 1 chromicized gut placed in the cervix has been so far absorbed as to break on the least tension after an interval varying from seven to ten days.

The relation of these somewhat scattered observations may perhaps be rendered more obvious by a brief discussion of the reasons which may govern the choice of material in different regions. Catgut has its largest field of usefulness in the suture of wounds and as a ligature material for vessels of moderate size.

In the suture of wounds, the choice of size and preparation is of considerable importance, for the use of sizes too small will jeopardize the firmness of the scar, while the use of sizes too large gives rise to the danger of slow absorption and possible sinus formation, thereby forfeiting its superiority over silk.

Let us consider in detail the closure of an abdominal wound in layers. For the suture of the peritoneum where no tension exists and healing is rapid, size No. 0 or even No. 00 unchromicized will prove ample to retain the tissues in apposition until healing has taken place. The suture of the muscular layer where it has been split longitudinally, opens the question whether it is wise to suture this layer at all. The application of a suture including a considerable bundle of fibres subjects this portion of the muscle to pressure which will probably result in its conversion into fibrous tissue. This action is rendered more probable by the inevitable changes in the size of the muscle whenever the patient moves, and some muscular action is inevitable, especially during the nausea following operation. In this connection a case observed by Dr. C. A. Porter is of interest and importance. Appendectomy was done in December, 1900, by incision through the right rectus. The wound was closed in layers with chromicized catgut, the separated fibres of the rectus being brought together by chromic No. 1 catgut sutures, including a considerable bundle of fibres, and especial care was taken to see that the

sutures were tied without tension. In July, 1901, seven months later, the abdomen was again open for intestinal obstruction due to post-operative adhesions, the incision being made in the site of the former one. Those portions of the rectus included in the sutures applied at the previous operations were found replaced by fibrous bands one inch wide, thus converting the lower segment of the muscle almost completely into scar tissue and seriously impairing its function. This observation and several other less striking ones have served to convince me that atrophy of tissue included in a suture very generally takes place, and that it is unwise to anticipate any other result. If sutures coapting muscular edges are so placed as to include very few fibres, they are of little or no value in strengthening the wound or preventing the occurrence of dead spaces, as the fibres are so friable that the suture gets very little hold. If any sutures are used in the muscle, they should be of the smallest size of plain gut, so as to be absorbed in a few days.

The fascia is the layer of the most importance, and it is here that opinions will be found to differ most widely. The object to be gained is the union of this layer without tension by a material that will retain its strength for from three to four weeks. The use of catgut in sizes smaller than No. 1 is not to be advised, as it certainly will not come up to the requirements in durability. No. 1 chromicized gut will last sufficiently long and appears to satisfy the requirements as well as any material at our command. Many surgeons prefer to use larger sizes, as No. 2 or occasionally No. 3, on the ground that No. 1 is not strong enough. This objection seems to me unsound, because the demand for a stronger material implies that too great tension is being put on the sutures. No suture tied under much tension can be depended upon to maintain nice approximation, for it will inevitably cut out until this tension is relieved. This process of cutting involves a certain amount of necrosis of tissue, and the danger of wound infection is thus increased. I have seen reason to believe that some at least of the wound infections which have been thought due to the use of infected material have in reality been due to the lowered vitality of tissue included in too tight sutures. In exceptional cases, when No. 1 gut is not quite strong enough or it is desirable to use tension despite its obvious dangers, No. 1 gut may be used doubled, thus giving ample strength without increasing the time required for absorption.

What has been said above in regard to the use of catgut in uniting fascial layers is entirely applicable to the special fascia involved in the radical cure of hernia. In this operation wound infection is so serious a complication that every effort has been made to discover and remove every possible cause. Too great tension on the sutures, while not perhaps a primary cause of infection, is undoubtedly a predisposing element, and may be avoided by the use of suture materials which will not stand too great a strain.

As a suture material for the skin, catgut has only one great claim, namely, that it does not have to be removed. The process of cell proliferation by which it is absorbed results in the formation of more scar tissue than takes place about the nonabsorbable materials,—silk-worm gut and silver wire,—and therefore is likely to leave a less perfect scar. It also acts as a drain to the fluids in the tissues, and by thus keeping the wound moist renders the surface a more favorable site for the growth of bacteria. The redness which is often seen in skin wounds sutured with catgut is not, however, always to be considered as evidence of infection, for it is often but the visible evidence of the formation of new vessels to carry on the process of absorption. When, however, it seems desirable to use catgut in spite of these disadvantages, No. 2 plain gut can be relied on to last from eight to fourteen days, and seems to be the size most nearly satisfactory.

As a ligature material, catgut has come into very general use, and in the practice of some surgeons into almost universal use. Its rapid rise in popularity has been due, first, to the well-known tendency of silk to form sinuses, and, second, to the general acceptance of the belief in the possibility of rendering catgut perfectly sterile. The bar to its universal acceptance has been a fundamental disbelief in its safety when applied to vessels of any considerable size. This fear is in part well founded, but it has to my mind proved more of a barrier to the use of catgut than the facts justify. It will be generally admitted that when vessels of large calibre or large masses of tissue are concerned, the softening which takes place in catgut when in contact with moist tissues will make its hold less secure than that of silk. Where great pressure is necessary to occlude the vessels, catgut will not maintain a high degree of tension for a sufficiently long time. But this does not apply to vessels of medium or small calibre, or conditions where it is possible to avoid ligature *en masse*. The fault which has been found with catgut under these circumstances and the liability to secondary hemorrhage belong not always to the material, but to the manner in which it is applied. The danger of trusting to two knots when three would give perfect security, and of cutting the ends of the ligature too short, have not been sufficiently recognized. If the ends of a catgut ligature are left one-half, or, better, three-quarters, of an inch long, the danger of the knot untying is eliminated.

The choice of sizes and preparations for ligature material is regulated by much the same considerations as in the suture of fasciæ. Sizes larger than double No. 1 chromicized gut are rarely necessary, for they are retained too long and may lead to sinus formation. In cases where catgut is to be used to ligate vessels of the first calibre, the larger sizes must be used, but I believe silk is a safer material for this purpose. For use on small vessels, as in breast operations, the small sizes, No. 0 and 00 plain gut, are to be preferred,



as they are only needed for a few days and they are rapidly absorbed. It may be stated as a general rule that catgut should be used in sizes as small as will do the work required in any given case.

In conclusion I wish to emphasize certain points which seem to me of importance: (1) In order to get the best results from catgut, care must be taken to select the size and preparation best suited for each occasion; (2) the use of too large sizes is one cause of unsatisfactory results; (3) care in tying and cutting catgut ligatures is essential to safety.

### NEGLECTED METHODS FOR THE STERILIZATION OF "GUM-ELASTIC" CATHETERS.<sup>1</sup>

BY F. J. COTTON, M.D., BOSTON,

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IN regard to the methods to which I am to call your attention, I would say that they are in no sense original methods of my own. They were new to me when first found and have proved new to a number of men to whom I have spoken of them. These methods I have tested rather carefully and, believing that they deserve to be used, call attention to them.

The first method, that of Herman of Rydygier's clinic, was published early in 1901.<sup>2</sup> He had found that gum-elastic catheters and bougies could be boiled in a saturated solution of ammoniac sulphate without damage, not only for a few minutes, but for several hours.

Somewhat later Claudius of Copenhagen published an article,<sup>3</sup> the original of which I have not seen, stating that "silk" catheters could safely be boiled in concentrated salt solution. A reasonably extended search in textbooks and periodicals, for mention of these or like processes, resulted only in the finding of a passing notice by Alexander, in Morrow's "System," to the effect that gum-elastic instruments could be washed, then boiled in salt solution one drachm to the ounce, dried and dipped in boiling water before using. These three methods seemed worth testing, and have accordingly, especially the first two, been pretty thoroughly tested.

First, as to the ammoniac sulphate method. This salt,  $(\text{NH}_4)_2\text{SO}_4$ , may be gotten of the wholesale drug and chemical dealers at twenty-five cents or less the pound. It is evidently a by-product and very dirty. It can, however, be cleared by filtering the solution, or, still better, by letting it stand and decanting. The salt is soluble in one and three-tenths parts of water. This saturated solution boils in the open dish at 227° F. For actual use a slightly weaker solution was used. An ordinary open pan was used, over a rose-burner. (a) In the first experiment an ordinary cheap gum-elastic catheter was boiled in this solution two

hours at a time for a total of eight hours. It showed no change of surface or flexibility, though slightly darkened in color. (b) Next, three catheters were boiled for a half-hour, and let lie in the solution for two days without damage. (c) A mixed assortment of seven catheters, bougies and filiforms of various grades<sup>4</sup> were boiled for ten to twenty minute periods for a total of five hours. They were washed and dried between boilings. Only one—a bougie by no means new—showed a little cracking and roughening. (d) Next, two catheters and an old bougie were boiled three-quarters of an hour and let lie in the solution for twenty hours. The old bougie was a good deal roughened, the catheters intact. (e) A mixed set of catheters and bougies—all new—were boiled for fifteen minutes, absolutely without damage.

Like experiments were made with concentrated salt solution. Salt is less soluble than the ammoniac sulphate, but a saturated solution proved to boil at nearly the same temperature, 227½° F. None of the fifteen assorted instruments subjected to long boiling in saturated salt solution showed any damage, save one cheap black bougie, which blistered slightly.

The method of using 12% salt solution (1 dr. to 1 oz.) was tried only twice, but on these trials boiling for fifteen minutes failed to show any damage to the instruments used.

Most of these experiments were carried out over six months ago, and most of the instruments used were kept, to watch for any late effects. There were none, except that instruments which were cracked before the experiments showed a recurring deposit of feathery crystals at the crack. This, however, like the crystals that form at the eye of catheters so boiled, is readily washed off and leaves no defect behind.

As a result of these tests, I am ready to claim that all the gum-elastic catheters, bougies, and filiform bougies ordinarily sold may be boiled repeatedly and for long periods in saturated (or something less than saturated) solutions of ammoniac sulphate or sodic chlorid without essential damage. New instruments show no damage whatever, used instruments only a deterioration that is of no great consequence. As to a choice between the two, I feel a little surer of the ammoniac sulphate, perhaps, but would choose it not so much because of this as because it is easier to handle and spatters less when it boils down than does the common salt.

As to the weaker solutions of common salt, they seem to be all right, but the tests made are too few as yet to be conclusive. At all events, the use of these more dilute solutions has no obvious advantage and has the disadvantage of lowering the boiling point.

It will be generally admitted that the use of gum-elastic instruments has been limited by the inefficiency of methods of sterilization, and that

<sup>1</sup> Read before the Surgical Section of the Suffolk District Medical Society, Jan. 8, 1902.

<sup>2</sup> *Centrbl. f. Chir.*, 1901, H. 8.

<sup>3</sup> *Hospitalsidenda*, 1901, vol. 1, p. 515, Nos. 12-16.

<sup>4</sup> It seems impracticable to ascertain the ultimate source of many of these instruments. Suffice it to say that all obtainable sorts were tried.

an easy and reliable method is desirable. It is to be feared that wiping with corrosive has not gone out of fashion entirely. Boiling in water almost instantly destroys the resinous coat of these catheters, as does steam. Formaline sterilization does no great damage, but is unreliable, as various experiments, notably those of Katzenstein,<sup>1</sup> reported in 1900, have shown. Formaline, here as elsewhere, gives only a surface sterilization at best, and leaves the lumen of hollow instruments almost untouched.

The methods here presented have not been tested bacteriologically, because it seems superfluous. Here is a choice of methods whereby this class of instruments can be subjected to boiling for indefinite periods without damage, and at a temperature, not of 212°, but of fourteen or fifteen degrees higher. The salts used, though not poisonous or essentially irritant, are soluble, and readily rinsed off in boiling or in sterile water.

It would seem that these methods are fitted to remove the reproach of gum-elastic instruments, that they "are not sterile," and to place their sterilization on as firm a basis as that of the metal instruments, with which we rest content.

## TWO NEW METHODS OF OPERATING FOR RETRODISPLACEMENT OF THE UTERUS.<sup>1</sup>

BY FREDERIC COGGESHALL, M.D., BOSTON.

THE number of operations for the cure of retroversion of the uterus which are now in use is in itself a proof that none of them have afforded perfect satisfaction. I do not think we are any of us quite content, in all cases, with the operations that have been most commonly employed. These are my reasons for drawing the attention of the members of this society to two new operations which have been devised and successfully employed in the West, but which, as far as I can learn, are very little known in New England. Each of them has its special indications, and I have used both in the last few years with highly satisfactory results. The length of time which has elapsed since the earliest of my own operations may not be sufficient to give absolute certainty as to the permanence of the results, if one is to judge only by experience, but the method of securing the uterus is such that I think we can predict with a great deal of confidence that it will prove efficient, without waiting for many years to elapse in order to test its permanency.

The two operations to which I allude are those of Goldspohn of Chicago, which is a modification, or rather extension, of the Alexander operation; and that of Gilliam of Columbus, Ohio, which seems to me very much superior to ventral suspension or fixation in cases where those operations are commonly thought to be indicated. Much of the dissatisfaction with the ordinary

Alexander is due undoubtedly to the lack of knowledge of its technique, so that many men experience a great deal of difficulty in finding the ligaments, and complain that they are liable to break when they are being drawn out. I feel convinced, as a result of my own experience, that the operation is always a short and easy one if properly performed. This is not the place to enter into a discussion of the technique of the operation; I only speak of it, as the first part of the Goldspohn is the same as the Alexander operation. The other objection to Alexander's operation is founded on the assertion that after it has been performed it often fails to give satisfactory results. This, I believe, is due, as I have pointed out elsewhere,<sup>2</sup> to lack of care in selecting cases. Large numbers of cases of retrodisplacement of the uterus are complicated by more or less disease of the ovaries or tubes, and, in the bad cases of long standing, are almost sure to be complicated by adhesions tending to hold the uterus in its abnormal position. It is in meeting these difficulties that Goldspohn's operation is so much superior for complicated cases of retroversion to the ordinary Alexander. One ordinarily sees unsuccessful Alexander operations in which the uterus has been left to be pulled both ways, forward by the shortened ligaments, backward by the old adhesions, or shortened uterosacral ligaments which the operation afforded no means of breaking up. Again, one sees Alexander operations where the uterus has remained in good position, but the dismenorrhea and backache has not been relieved because of the presence of sclerocystic ovaries which the operation has left untouched. It is so common to find a retroversion of long standing complicated by adhesions, shortened uterosacral ligaments, and diseased tubes and ovaries, that an operation which, without adding materially to the seriousness of an ordinary Alexander, will enable us to correct the common complications of retrodisplacement, seems to me to fill a very important place. I assume that it will be granted that the ordinary incision into the abdominal cavity adds sufficiently to the gravity of the operation and lengthens and complicates the convalescence enough to be avoided if possible, provided these conditions can be equally thoroughly treated without it.

Goldspohn's operation, as I have performed it during the last three years, is as follows: The common Alexander incision having been made through the skin, the fat is separated with the fingers to avoid hemorrhage, down to the superficial fascia; this is cut, and the fat again separated with the fingers down to the deep fascia, which is thoroughly cleaned off before any attempt is made to find the ligaments. This makes the ring perfectly obvious, the two pillars being laid bare and standing out distinctly, the fat of the ring can be seen bulging up between them and we know that the ligament lies somewhere below it. The operator then proceeds to find the ligaments. The superficial fat of the ring being

<sup>1</sup> Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Oct. 23, 1901.

<sup>2</sup> *Centrbl. f. Chir.*, 1900, Vereinsbeilage, p. 105.

<sup>2</sup> *American Gynecological and Obstetrical Journal*, June, 1901.

gently lifted, the tissues just beneath it grasped in the forceps will usually bring immediately into view the nerve and the ligament. However, it is perfectly possible that instead one will take hold of some fascia or deeper-lying fat. Before beginning to pull out on any tissue grasped by the forceps, it is necessary to clean it up sufficiently to be perfectly certain of what we are pulling on. Holding a pair of forceps in each hand, the operator grasps in one of them the mass of fat and fascia which he supposes to contain the ligament, while he slips the other pair under any part of the mass he is holding which is obviously not ligament. The second is then grasping rather less than the first, having excluded the nerve and a part of the fat. The first pair then lets go and proceeds to take another hold, excluding a little more of the superfluous tissues, and this process, which regularly eliminates all extraneous tissue, is repeated until the white shining ligament, whose appearances when every step has been accompanied by careful cleaning up of the tissues and sponging, to avoid discoloring the tissues with blood, is perfectly characteristic. As soon as the ligament has been separated from the adjacent tissues, and especially from the closely attached strands of fascia which connect it with the edges of the ring, it pulls out perfectly freely and with a suddenness that is apt to alarm one lest it has been broken. Both ligaments having been found in this manner, thoroughly cleaned and drawn out free from any attachments to the surrounding tissues, the peritoneal reflexion comes into view. The external ring is then slit upward with scissors for about half an inch. The loose fold of peritoneum which hangs about the ligament should be grasped about one-third of an inch, if possible, from its attachment to the ligament, and snipped through with scissors. This gives one a direct opening into the peritoneal cavity at the upper angle of each Alexander incision. The opening is large enough to admit the finger readily, and can be expanded so as to admit two if necessary. With the forefinger of each hand in the peritoneal cavity, one on either side, adhesions in Douglas' pouch can be readily broken up; tubes and ovaries on either side can be drawn up through the openings and inspected, and if their condition requires resection or removal this can be accomplished as easily as through the median incision. The adnexa are then returned to their proper place, and the cuts in the peritoneum closed with fine catgut, the slit in the external rings closed with kangaroo tendon or celluloid thread, and the operation completed as an ordinary Alexander.

To my mind this operation possesses the immense superiority over the ordinary Alexander that the round ligaments are not shortened until after any adhesions which may hold the uterus back have been broken up, and that any diseases of the tubes or ovaries which may have been complicating the case have been removed. Its advantages over the median incision is that there is, I believe, practically no danger of hernia when the

wounds are carefully closed, that the bowel has not been exposed in the least, many times not even touched by the fingers throughout the operation. The consequence is that the patient's convalescence is much shorter; it is my practice to allow them to sit up on the seventh day, and if they are anxious to save expense in the hospital, send them home on the tenth. These advantages more than counterbalance in my opinion the fact that the operation involves two incisions and requires somewhat longer to perform than the single median incision. Goldspohn himself, with larger experience and more finished technique than I can lay claim to, finds that the operation takes no more time than an ordinary celiotomy. This method of operation is of course adapted only to cases in which the tubes and ovaries are of moderate size, and I still think, though I have employed Goldspohn's method more in the past year than formerly, that in cases where the shortening of the uterosacral ligaments is a marked feature, the method that I have employed for some years, of posterior colpotomy with section of the shortened ligaments and operation on the ovaries through the vagina, followed by a simple Alexander, is preferable. I do not think that we can deal equally thoroughly with the uterosacral ligaments by Goldspohn's method.

Gilliam's operation is adapted to all cases of retrodisplacement where for other reasons a larger abdominal incision is necessary, as where large pus tubes or cysts of the broad ligament have to be dealt with or where myomectomy is required. Here it is the common practice to perform fixation or suspension. The objections which I entertain against these operations I have stated elsewhere;\* they are well known to all of you, as they are those which have been urged by many careful gynecologists ever since these operations were first introduced. Gilliam's operation is free from all these objections in any case in which it is really necessary to make a median or abdominal incision, that is, cases in which Goldspohn's operation would not apply. It holds the uterus forward by the connective tissue and muscle fibre of the round ligaments instead of by adhesions. It is therefore less open to the danger of the stretching of the attachments and it leaves no artificial bands in which the bowel can be caught. The uterus, after such an operation, being secured by its normal ventral attachments only, can accommodate itself to the changes of position in pregnancy as well as it could after an ordinary Alexander. The operation takes no longer to perform than ventral suspension or fixation and involves no longer convalescence, in fact, in my practice, a shorter one. This operation, which, as far as I am aware, was first described by Dr. Gilliam at the annual meeting of the American Association of Obstetricians and Gynecologists in September, 1900, was new to me up to that time, so that my experience with it has been a short one. My first operation was immediately after the reading of Dr. Gilliam's paper, and I

\* American Gynecological and Obstetrical Journal, June, 1901.

have since done eight others by the same method. The first case is little more than a year old, and several others were done nearly a year ago. The operation that I have performed is as follows:

After we have finished the myomectomy or whatever else may be necessary in the case, a ligature is passed under each round ligament about an inch from its uterine origin and the ends temporarily secured with pressure forceps. The skin and fat are then pushed back from the cut edges of the fascia at the lower end of the incision for the space of about an inch. The fascia is then pierced with the point of a knife at a point about one inch from the edge of the median incision and an inch and a half above the pubes, a sharp-pointed pair of pressure forceps, such as Kelley's, is then thrust through this opening in the fascia on either side and through the muscle and peritoneum, the finger being held on the inside to receive the point of the forceps. These forceps then grasp the ligature under the round ligament and draw the ligature and after it the round ligament up through the opening in peritoneum, muscle and fascia. Any slack at the distal end of the ligament is drawn out through the opening and the ligament is secured to the outer surface of the fascia by three or four stitches of kangaroo tendon. The uterus has in this manner been fastened forward by means of its round ligaments, which are attached to the abdominal wall at a point about two inches from each other, and in such a manner that about an inch of the proximal end of each ligament has been left inside the abdominal cavity. The abdominal wound is then closed in layers in the ordinary way. The patient may be allowed to sit up on the tenth day and leave the hospital on the fourteenth.

These operations are of course only applicable to women who are not old enough for the round ligaments to have undergone atrophy. They leave the stronger proximal portion to afford support, and dispense with any dependence upon the thin distal end of the ligament. In this respect they seem to me much superior to any method of shortening the round ligament by doubling the proximal portion upon itself within the abdominal cavity.

### THE INFLUENCE OF SCHOOL LIFE OVER HEALTH.<sup>1</sup>

BY FRANK W. WRIGHT, M.D., HEALTH OFFICER, NEW HAVEN, CONN.

THE influence school life has over the health of pupils should interest not only physicians and those actively engaged in school work, but all parents who desire their children to arrive at maturity with their physical as well as their mental powers well developed and equipped to meet the struggles of life. Undoubtedly the seeds of many of the ills of those of mature age are sown in the schools, and it is highly probable that many of the failures of manhood are due to the slothful dispositions and indolent habits engendered by

<sup>1</sup> Read before the American Public Health Association, Sept. 20, 1901.

badly ventilated and poorly lighted schoolrooms, in which they, as children, have spent many hours, supposedly improving both their physical and their mental endowments.

The first principles of school hygiene are embodied in the selection of the sites for the schoolhouses and the construction of the buildings and furniture as regards ventilation, light, the positions the pupils must maintain during school hours and the sanitary requirements. Concerning these, the physician is never consulted, and seldom the sanitarian. In cities and large towns some consideration is given to these requisites when a schoolhouse is about to be constructed, but in the small towns the schoolhouse is usually placed where the land is least available for other purposes, and the building is such as will receive the approval of the most conservative taxpayer.

In selecting a site for a school, proximity to marshes and unsanitary surroundings should be avoided. A high position is desirable, and the ground should be dry by nature or by properly constructed drains.

The construction and furnishing of school buildings cannot be fully discussed in this paper, as the details are many and technical, but it is necessary that some of the essential features be mentioned. The buildings ought not to be over two stories high, with wide and well-lighted halls and stairways. The floors and all woodwork should be closely joined, in order that dust and disease germs may find no hiding places. A cellar should be under the whole building. The walls may be tinted, but the ceilings should be white. If heated by a furnace, care should be exercised that the cold air taken in is free from all possible contamination. Forty or fifty pupils are as many as should occupy any room, and about twenty square feet of space should be allowed for each person occupying the room. I believe that, with proper care, a room can be better ventilated by the natural air circulation than by any of the elaborate systems for artificial ventilation. Light should be introduced from the left of the pupils, and a northern light is preferable. The area of glass should be about one-fifth of the floor area. Water closets should never be in the basements, but should be placed at convenient distances from the schoolhouses and have covered approaches. Desks and seats should be so constructed that the front edge of the desk will be upon a line perpendicular with the edge of the seat, which should be of such height that the pupil's feet may rest flatly upon the floor. The top of the desk ought to be about even with the elbows and slightly sloping.

The diseases most common to school life are near-sightedness, deformities of the spine, disorders of the nervous and digestive systems, tonsillitis, consumption and the contagious diseases of childhood, such as scarlet fever, diphtheria, measles and whooping cough. It has been found by the examination of the eyes of many thousand children in the high schools of Europe that over 40% were near-sighted to a greater or less degree. It was also found that this defect increased

from the primary to the higher rooms not only in frequency but in degree. The causes of this trouble are badly arranged and insufficient light, bad air, improperly constructed desks, and badly printed textbooks. One investigator found that in the more modern schoolhouses, where more attention is paid to the light and arrangement of the seats, that the proportion of pupils with defective eyesight is less than among those of the older schoolhouses.

Curvature of the spine is quite common among school children, and can nearly always be attributed to the positions assumed by them on account of improperly constructed desks and seats. A much larger proportion of girls have spinal deformities than boys. A prominent cause for this is the fact that the clothing of girls hangs loosely about them, and when they are seated tends to gather into irregular pads, raising one hip higher than the other. They also, when at study, are more inclined to assume twisted positions than boys.

Nervous disorders, such as headaches and hysteria, are not at all infrequent, and affect the teachers as well as the pupils. Girls, again, are more subject to these disorders than the children of the opposite sex. Impure air, defective light and mental strain are accountable for these troubles.

Disorders of the digestive system with which many school children are visited, are caused by poor food, cold lunches, eating nuts and sweets and neglect of the calls of nature. One of the important factors in the causation of disturbances of both the nervous and digestive systems I believe to be too long school hours. In my opinion, many of the failures in health and scholarship among the pupils of our high schools are due to the hours. A session of three hours, with a short intermission, is as long as any growing person should work. The hours most of the high schools are in session require an early breakfast and a late dinner. Often the latter is long after the rest of the family have dined, and the food is either cold, or warmed over and not palatable. From personal observation I am certain that the exercise and refreshment taken during the intermission are not of the right nature. Those that take exercise do so with the same clothing that they wear in school and with uncovered heads, be the weather fair, cold or damp. The lunches are largely of sweets and other indigestible foods. These not only cause digestive disturbances, but prevent keen mental activity.

It seems certain that many who develop consumption later in life have the way paved for this disease during their school life by overcrowding, bad air, overheating, and cold draughts of the schoolrooms, by neglected coughs, poor nourishment, etc. I believe the surest way to correct this is to employ only healthy teachers and to give delicate children accommodations by themselves.

Tonsillitis is often epidemic in schools and is contagious. It is very apt to prevail at the time

diphtheria does and may be confounded with it. Special care should be taken that children who have had the latter disease do not return to school and report that they have been sick with tonsillitis. It will be impossible to always prevent this, as the clinical symptoms of both diseases are very similar and the most conscientious physician is liable to be mistaken. A bacteriological examination alone surely establishes the correct diagnosis. Tonsillitis may be caused by poor ventilation or by sewer gas that has escaped into the room.

The diseases that are most frequently brought to the teacher's attention, and that often cause serious alarm, are, scarlet fever, diphtheria and measles. These diseases are never contracted from defects in the construction of the school building, nor even from poor ventilation or escaping sewer gas, but each of these may lend material aid towards rendering persons susceptible to the contagion of any of the complaints. No one of these diseases can be contracted in the school-room except by some person bringing into the room the particular micro-organism that is peculiar to it. This may be by the person, who has been sick, returning to school before sufficiently recovered, or before his person and clothing have been disinfected, by other members of the family attending school or by persons residing in houses in which contagious diseases exist, unless great care is taken in isolating the patient and in disinfecting the articles likely to be infected.

Physicians, sanitarians, architects and school boards are at the present time seriously considering how sickness among school children may be lessened, and as a result of this, the hygiene of our schools must improve, but the good accomplished will be more noticeable in years to come when statistics for several decades can be compared.

The first great care, when schools are assembled, is to see that all, both pupils and teachers, have been successfully vaccinated. If we allow children to pass into adult life unvaccinated, we are raising a population that are liable at any time to contract a disease that, previous to the discovery of vaccination, killed more people than all other diseases together. At the present day it is well known that communities where this has been neglected suffer more from this scourge than those where vaccination is compulsory. It is of the greatest importance that not one person connected with a school should be in the least susceptible to smallpox, as a single case would cause a panic that would not be confined to the school in which it occurred, but would so interrupt the usefulness of all of the schools of a city or town that it would be many months before anything like systematic work could be resumed. Children who have not been vaccinated during infancy should be before beginning school, and again when they are twelve or fourteen years of age, and the dates and results of such operations should be made a part of the school record.

No child from a family in which a contagious disease exists should be allowed to attend school,

and no child from the same house should do so until some person, whose duty it is to personally investigate, certifies that all due precautions have been taken by isolation and by disinfection of all articles exposed to infection, and that the one receiving the certificate has been free from exposure to the disease. Any person who has been exposed to a contagious disease should not attend school for at least two weeks from the last known exposure.

A person who has been sick with scarlet fever should be kept from school until at least the process of desquamation has been completed, and even then he should not return until there has been a thorough disinfection of the person and premises.

Many seem to believe that when, in a case of diphtheria, the membrane has disappeared from the throat, the danger of its being communicated to others is past. I am certain that outbreaks of this disease often have their origin from persons who have been allowed to return to school before their throats have become free from the Klebs-Löffler bacilli. As a bacteriological examination of cultures made from the throat is necessary to establish a positive diagnosis, so is it necessary to positively prove that the bacilli have left and the danger is past. Disinfection after this complaint is of the same importance as after scarlet fever.

Measles and whooping cough are diseases that do not receive sufficient attention, especially the latter. Measles is a dangerous disease unless the best of care is given to the sick. Fatal attacks of pneumonia and bronchitis are frequent complications of measles, and many other complaints may be more or less directly due to it. Children who have been exposed to measles need to be isolated fully as much as those who have been exposed to scarlet fever or diphtheria, as in measles the danger of contagion is probably greatest during the catarrhal stage, which usually precedes the eruption by about four days.

It is frequently stated that whooping cough is but a trivial disease, and that all children should have it while young and be through with it. To my knowledge teachers have within a few years made the statement that "having whooping cough was no excuse for being absent from school." Such opinions and teachings are not only erroneous, but extremely dangerous. I regard this disease as one to be shunned as much as possible. While whooping cough is not particularly fatal to older and robust children, it may be contracted by them at school and by them communicated to other members of the family. It is a very fatal disease to young and delicate children. During the year 1898, the year whooping cough was last epidemic in New Haven, there died in that city from this complaint about one-third more than there have from scarlet fever in the last eight years.

Any disease that can be contracted at school and carried to the home should be most rigorously excluded from school, and teachers should refrain from giving advice at variance with this policy.

No invariable rule as regards the length of time one who has had a contagious disease should be kept from school can be given, as all diseases vary in severity and duration. I am of the opinion that a person who has had scarlet fever can resume his usual avocations, provided disinfection of person and home has been thorough, at the end of seven weeks, diphtheria four weeks and measles two weeks. It sometimes happens after any of these diseases that the time above given is not long enough, and often a person may safely associate with others in a much shorter time.

It should be forcibly brought to the attention of teachers that all rules for the protection of the health of the children should apply to them as well as the pupils.

I deem it of the greatest importance that the pupils should have nothing in common, as it is well known that children with contagious diseases often attend school for several days before it is discovered that such is the case. It has been conclusively shown that diphtheria can be communicated by means of pencils, drinking cups, books and clothing. Most of the attempts that I have seen to keep separate these articles have been but a delusion. Each child should have books used by no one but himself, and the books when dirty or infected should be destroyed. One of the bright young teachers of the writer's own city has devised a cap for pencils that is superior to anything known of by him for preventing the liability of contagion being spread by this means. This cap is about one and a half inches long, and is made of aluminum with an alloy of some metal hard enough to make it unpleasant to bite. This can be easily wiped with a disinfectant. A number is stamped into the top which preserves the individuality of the pencil. New Haven has also the credit of manufacturing within its limits the only sanitary drinking fountain of which the writer, after diligent inquiry, can learn. It is impossible to intelligibly describe this, but it is so constructed that a column of water is raised with more or less force as required, in such a manner that the smallest child can readily drink without inconvenience and without soiling his lips with anything that has been touched by another. I have viewed with pleasure the coat rooms of some of the modern schoolhouses, which are so constructed that the garments of the pupils are kept entirely separate from each other.

Medical inspection of schools, if properly performed, seems to offer more possibility toward lessening sickness among the young, not only at the school, but in the home, than any plan yet adopted. This can best be done by making four classifications of the subject, namely: (1) Sanitation of the buildings, which should include the inspection of closets, urinals, heating and ventilating apparatus, lighting and the general cleanliness of the rooms and halls, the water supply and means by which this is served, and possibly supervision of books, pencils, etc., as to neatness and disinfection, and destruction if necessary. (2) Examination of pupils, which should be daily, for



the prevention of contagious diseases and at stated intervals for the detection of parasitic diseases and vermin, and at least once every term to ascertain if all pupils have been successfully vaccinated. (3) The examination several times a year of the eyes and ears of each pupil, that errors in refraction of vision may be corrected and defects in hearing may be treated. Many a child, naturally bright, has been considered hopelessly dull, simply because no one had discovered that there was a defect in his sight or hearing. (4) What may be called outside inspection; that is, investigating into causes of absence of children from school, and if they are found to be sick, the nature of their illness. The custom of sending children from the schools for this purpose is very wrong and should not be allowed. I have several times been present in houses in which there were contagious diseases, when children have come from the schools and were intending to return immediately, and have known them to be invited in to wait, which they would have done except that I prevented it. I am convinced that in this manner contagion is sometimes conveyed to the schoolroom. It is plainly the object of medical inspection of schools, not only to exclude those actually sick, but to use all means to preserve the health and happiness of the pupils and their relations and friends at home.

The increased agitation by sanitarians, within the past few years, of this important subject, school hygiene, has awakened an interest among the parents of children that attend the public schools, and they are now expecting precautions against diseases by health and school authorities, that ten years ago had not even been considered possible. I know of no more tangible results than can be obtained from the labors of local health authorities than by attention to school hygiene. It is, therefore, necessary that local health boards and their employees cultivate by efficient performance of their duties the interest the people now exhibit in this branch of sanitary science, that the work may not alone be passively endured, but be in such demand, that sufficient appropriations for this purpose cannot be denied by the financiers of the local governments.

## Medical Progress.

### REPORT ON THORACIC DISEASES.

BY JOHN W. BARTOL, M.D.

#### COMPRESSION THROMBOSIS OF LEFT INNOMINATE VEIN IN PERICARDITIS.

ZEZSCHWITZ<sup>1</sup> reports the case of a patient suffering from pericarditis complicated by a left-sided pleural effusion. A striking feature of the physical examination was the presence of numerous dilated veins appearing on the surface in the upper chest, and supplying neck, head and left arm. The obstruction to the internal veins of

which this collateral circulation seemed a proof was taken to be an inflammatory affection in the mediastinum (no ground for assuming new growth). In the left supraclavicular depression was to be felt a cord-like thickening which corresponded in situation and direction to the external jugular, and another corresponding to the course of the thyroid vein. At autopsy (six weeks after first observation and several months after beginning of the ill-defined sickness) was found chronic and acute pericarditis; thrombosis, from compression, of the left innominate, the internal jugular and the inferior thyroid on the left; and a left-sided hydrothorax; the left pleural cavity containing five litres fluid (in spite of several aspirations during life) while the right contained only one-half litre. A discussion follows as to the mechanical factors in the case, and the difficulty of satisfactorily explaining the existence of unilateral hydrothorax.

#### RIGHT-SIDED CARDIAC HYDROTHORAX.

Stengel<sup>2</sup> having had his attention originally attracted to a frequency of this condition much greater than is granted in the majority of writers, by a double series of cases observed by him from 1893 to 1897 and reported by Steele, analyzed a further series of 100 consecutive cases of cardiac disease (chronic myocardial or valvular). Of these, seventeen showed the existence of hydrothorax, and out of the seventeen the effusion was at some time confined to the right side in seven, was bilateral with greater involvement of the right side in seven, and was left-sided in three. The inadequacy of other explanations that have been offered led him to seek for one in the anatomical relations of the greater azygos vein to the right auricle. He shows that even a moderate dilatation of the right auricle will press upon the vein and produce a congestion felt throughout the supply of the right intercostals and often resulting in a right-sided hydrothorax. A secondary and less extensive left-sided effusion (shown in seven of his cases) may be explained by the fact that the upper and lower azygos veins on the left empty into the greater azygos, and consequently feel the effects of stasis to a greater or less degree.

#### TRANSPOSITIONS OF THE HEART; ACQUIRED AND CONGENITAL.

Under the heading of Acquired Dextrocardia Lohsse<sup>3</sup> describes a case of extreme displacement in which the heart's dullness apparently extended from anterior axillary line on right along the lower border of fourth rib to about 4 cm. from right sternal border, then obliquely downwards to the sixth rib at about 2 cm. from right sternal border where the apex was located; the evident cause was the pull from contraction of right lung as a result of tubercular disease and the push of the emphysematous left lung. He satisfied himself by experiments that such displacement is the result of two motions: (1) The rotation of the

<sup>1</sup> Muen. Med. Woch., No. 34.

<sup>2</sup> University of Pennsylvania Medical Bulletin, June, 1901.

<sup>3</sup> Muen. Med. Woch., No. 34.

heart's base, which, owing to the normal attachment of the pericardium, is more movable than the apex; (2) the dislocation of the heart as a whole toward the right.

Walbaum<sup>4</sup> reports a case similar, but with less displacement, and concludes, largely on theoretical grounds, that the change of position is the result of four motions: (1) Direct displacement to the right; (2) displacement upward, as combination of pressure from the diaphragm and pull from the contracting lung; (3) rotation of heart about a sagittal axis running through the middle of the base; (4) rotation about an axis which measures the longest diameter of the elliptical cross-section of the heart.

Paltauf<sup>5</sup> calls attention to the diversity of underlying causes and actual conditions, and makes a plea for greater uniformity of nomenclature and sharper definition of the types already recognized as existing: thus, as examples: (a) Simple acquired dislocation of the heart to right side of body, apex pointing to right, without change in anatomical relations of vessels or chambers. To this quite rare condition he would give the name of "dextroversio cordis." (b) The congenital condition of transposition of the great vessels, the aorta and pulmonary arteries arising more or less anomalously, with or without a change of the heart to the right side of the body. This differs from (c) Situs Transversus, in which the heart is on the right, but the vessels in their relative anatomical relations are normal. Under (d) Dextrocardia are included the indefinite cases where the heart is dislocated to the right, but the apex maintains its direction toward the left.

#### OCCCLUSION OF ALL VESSELS ARISING FROM AORTIC ARCH.

A truly remarkable case is reported by Türk<sup>6</sup> in which, as a result of aortic disease, the right coronary artery, the innominate, the left carotid and subclavian, and several of the upper intercostals were completely plugged. This change came about so gradually that the patient complained only that for past years, in brisk walking or hard work, there was a feeling of oppression in his chest, without palpitation, dyspnea or cough. A few weeks before admission the discomfort had been increasing and extended toward back, shoulders and upper arm, especially on left side; occasionally passing dizziness and imperfect vision were present. He was forty-four years old and at thirty-three underwent inunction cure for syphilis. The striking points in examination were paralysis of left recurrent laryngeal nerve; moderate dullness over manubrium; heart sounds everywhere clear, the second aortic plainly increased and somewhat ringing. Examination with x-ray entirely negative. At the base of the neck a very strong pulsation was to be felt, which reached above the region of the jugular bulb. The right subclavian was palpable, but the pulse beat in it

very small and weak. The right carotid felt like a stiff and only weakly pulsating tube; in the right axilla, with great care, a suggestion of pulsation was at times to be felt; in the right brachial and radial, however, there was absolutely no pulse to be felt; the left carotid could be felt but did not pulsate, nor did the left subclavian, axillary, brachial or radial show any sign of pulse wave. The vessels themselves, wherever palpable, were felt as stiff and tortuous tubes; in like manner the two temporals were visible, palpable and pulseless. In striking contrast to the arteries of the upper extremities, those of the lower were more than ordinarily full and strong in their pulsations. Inspection and palpation of the skin of trunk showed astonishing anomalies in the shape of branching, tortuous, plainly pulsating vessels, the size of a quill and larger. They were especially numerous in the upper portion of the back, evidently rising from the deeper regions, and after giving off branches in region of angle and outer border of scapula, gradually centred toward the axilla and disappeared beneath the surface. By pressure on these vessels it could be demonstrated that the current in them was from below upwards and in general from the middle line outward. The appearances on the anterior surface of trunk were not so striking, but in regions of supply of inferior and superior epigastric arteries on the right, pulsating vessels were plainly felt.

During the twelve weeks which followed the first examination there were simply the signs of moderate cardiac insufficiency, and the complaint of pain on swallowing. Death ensued suddenly, with hemorrhage from mouth and nose. The autopsy findings were aneurism of aortic arch adherent to esophagus and recurrent laryngeal nerve; perforation into the esophagus; occlusion of the right coronary, the innominate, the left carotid and subclavian and several of the upper intercostals, from aortitis. A study of the collateral supply was made and it was found that the most important factors were the lower intercostals and the lumbar arteries; less important was the anastomosis between epigastric and internal mammary.

#### AIDS TO DIAGNOSIS OF ADHERENT PERICARDIUM.

The "cardinal" symptoms of concretio pericardii being notoriously unreliable, Türk<sup>7</sup> has given the condition careful investigation, and reports a series of cases with instructive comment and conclusions. He has been especially helped by signs not generally considered as suggestive of the condition. Thus in the first line, he would put a striking picture of cardiac insufficiency, without proof of valvular disease, or cause for muscular degeneration; evidence of tricuspid insufficiency, a sign of such weight that, given such evidence in the absence of organic affection of the valve or other probable causes, a diagnosis of adherent pericardium is as good as made; an extreme cyanosis as the heart loses power, with a peculiar hydrops of the serous cavities showing

<sup>4</sup> Deutsch. Med. Woch., Sept. 19, 1901.

<sup>5</sup> Wien. klin. Woch., No. 42.

<sup>6</sup> Loc. cit., No. 32.

<sup>7</sup> Wien. klin. Woch., No. 37, et. seq.

itself first in the peritoneal cavity; in the presence of ascites and hydrothorax the absence of hydropericardium is most significant; congestion of hepatic circulation is likely to be marked. A feature of all these proofs of an obvious impairment of the heart's activity is the obstinacy which they show to ordinary methods of relief. They are given with numerous other hints, not as being essentially new in themselves, but because they are too often undervalued as being of less importance than the considerations which receive the chief attention in the textbooks.

#### THE FLINT MURMUR IN AORTIC INSUFFICIENCY.

Thayer has made<sup>8</sup> a careful statistical study of seventy-four cases of aortic insufficiency coming to necropsy. In 45, or 60%, of these was heard at some time during observation a murmur suggestive of mitral stenosis; in only twelve of these forty-five cases was there a stenosis of the mitral valve, while in thirty-three the orifice was of normal or increased circumference. Going on to a careful consideration of the signs of uncomplicated mitral stenosis, mitral stenosis with aortic insufficiency, and aortic insufficiency with Flint murmur, he concludes that the Flint murmur exists at some time in fully one-half of the cases of uncomplicated aortic insufficiency; the character of the murmur differs in no essential particular from that observed in true mitral stenosis, except that it is more often of moderate intensity; a presystolic thrill is very often present. As differential points, especial stress must be put on the absence in uncomplicated aortic insufficiency of the tapping systolic impulse and snapping first sound so characteristic of true mitral obstruction, and the failure of the pulse to show a notable diminution in volume. He inclines to the theory, modified from Flint's explanation and supported by Guitéras, Potain and Broadbent, that the great curtain of the mitral valve, pressed up by the retrograde current from the aortic orifice, vibrates under the double influence of this stream and the forward one from the auricle, and thus produces the thrill and murmur.

#### TRACHEAL TUG.

The value of Oliver's sign as pathognomonic of thoracic aneurism is again discredited by the investigations of Sewall.<sup>9</sup> He studied 430 persons, presumably not having aneurism. These he divided into three classes: (1) Normal individuals, or those in whom there was no evidence of left-sided pleural adhesions or pulmonary fibrosis; (2) cases manifesting signs of tuberculosis at the left apex, or those with a history of pneumonia or pleurisy on the left; (3) cases of marked atelectasis or emphysema, that is, those in whom there might be assumed to be simply lack of extensibility of the lung tissue. He draws the two important conclusions: (1) That a tracheal tug quite palpable is very apt to be associated with and dependent

upon adhesions of the left pleura. Diminished extensibility of the lung tends to produce the same phenomenon, and the tug is most pronounced when the conditions are combined; (2) that in the normal individual descent of the heart with inspiratory movement of the diaphragm may so press the aortic arch upon the left bronchus as to impart to the trachea the aortic pulse, recognizable at the larynx as a palpable tug of greater or less distinctness.

#### TREATMENT OF ANEURISM.

The enthusiasm for treating aneurisms by gelatine injections has cooled down, in the face of failure to realize the hopes originally held forth, and while this procedure continues to give somewhat encouraging results in selected cases, the pendulum is swinging again to surgical interference with wire and galvanic current. Papers by Willard<sup>10</sup> and Freeman and Hall<sup>11</sup> give review of the literature and report cases which are illustrative of the possibilities and limitations of this method.

#### COMPRESSION-THERAPY IN HEART DISEASE.

Mendelsohn<sup>12</sup> is convinced that the two years' experience since the first device for applying pressure over the region of the heart was put in use by Abée, has shown the measure to be of very distinct value in mitigating the distress in many cases of heart disease; in all those, in other words, in which there is enlargement with hypertrophy and dilatation of the left ventricle; not in nervous affections, in degenerations, or valvular trouble without hypertrophy. The explanation of relief afforded by the apparatus, is based on the idea that the distress is caused by the impact on the chest wall of the hypertrophied heart; the area of impact being much increased by the pushing aside of the lungs which normally act as a buffer, and the force of the impact being actually much greater owing to the added power of the heart. Also as factors in the production of distress are to be considered the dragging of the heavy organ on its suspensory attachments, and the increased mobility which it acquires.

If then, by any means the chest wall can be steadied, if something can partly fill the function of the lung as an elastic buffer, if the heart can in a measure be supported and kept from too much change of position, a great relief will be afforded. Such has proved to be the case, and numerous forms of apparatus have been devised to these ends.

The one here described is a metal plate moulded in a plaster cast of the chest wall to fit an area slightly larger than that corresponding to the enlarged heart. On the inner surface of this plate is fixed an air cushion which can be blown up by the patient after the plate has been firmly fixed to the body by straps.

<sup>10</sup> University of Pennsylvania Medical Bulletin, September, 1901.

<sup>11</sup> American Journal Medical Science, December, 1901.

<sup>12</sup> Berl. klin. Woch., No. 34.

<sup>8</sup> American Journal Medical Science, November, 1901.

<sup>9</sup> Loc. cit., Aug. 1, 1901.

## SUDDEN DEATH FROM HEART FAILURE IN CASES OF SUPERFICIAL ULCERATIONS.

Zuppinger<sup>13</sup> reports three cases in children all under four years in which during the course of trifling ulcerative processes, sudden death intervened. In the two which came to autopsy a similar condition was found of myocarditis and nephritis. The pus from the lesions was not examined, but the supposition is that the pathological condition in heart and kidneys was the result of toxin absorption. The ages of the patients are held responsible for the great susceptibility of the organism to such poison.

## PERFORATING WOUND OF HEART SUCCESSFULLY SUTURED.

Wartten<sup>14</sup> details many points of interest in his account of what he claims to be the first and only operated case, in which the heart wound was complicated with perforation of the right pleural cavity and with pneumothorax. Three sutures were taken in right ventricle and complete recovery ensued.

## FOUR CASES OF SUDDEN DEATH IN HEART DISEASE WITH UNUSUAL PATHOLOGY.

In *British Medical Journal*, Nov. 23, are reported three cases of sudden death from rupture of the left ventricle, all occurring in insane patients, but without any immediately antecedent activity leading to strain on the heart. Necropsy in all cases showed marked fatty degeneration of heart without other striking changes.

In the same journal is described a case of sudden death of a patient while in bed, with autopsy findings of an atheromatous perforation as large as a small crowquill in the posterior wall of the left ventricle, corresponding with a ragged, funnel-shaped ulcer the size of a shilling on the inner wall.

## CHEST COMPLICATIONS IN ABDOMINAL DISEASE.

Bruce<sup>15</sup> gives timely emphasis to the necessity, perhaps well recognized, but certainly often overlooked, of making carefully repeated routine examinations of the chest in all cases of abdominal disease in which the diagnosis is in the least obscure, and vice versa. He details two interesting groups of cases. The first includes tuberculous peritonitis, appendicitis, subdiaphragmatic abscess, and affections of the chest secondary to hepatic disease. In all the instances under these headings diagnosis was made conclusive only by careful consideration of the signs within the chest representing complications of suspected conditions within the abdomen which alone were not adequate to furnish all the details of the clinical picture. In the second group of cases, including hepatic disease, pleurisy and perigastric abscess, pleurisy and perinephritis, pleurisy and peritonitis, hydatid of liver, and pelvic disease, very

instructive instances are given in which the principal symptoms seemed to point to the chest, but the condition there on careful examination was found to be secondary to the original and at first unrecognized abdominal trouble.

## COLLAPSE OF LUNG IN PNEUMOTHORAX.

As a result of a few experiments on rabbits, Hellin<sup>16</sup> concludes that in pneumothorax the lung does not entirely collapse; that double pneumothorax is not of necessity immediately fatal; that the lung is able to re-establish its function by prompt absorption of the air in the pleural sac as soon as the opening is closed.

**Reports of Societies.**

## SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. B. LUND, M.D., SECRETARY.

REGULAR meeting Wednesday, Jan. 8, 1902, Dr. F. S. Watson in the chair.

DR. J. C. HUBBARD read a paper on

THE SUTURE OF ARTERIES.<sup>1</sup>

DR. CHEEVER: The subject is all new to me, but I cannot help reflecting on the hopefulness of the future when I recur in my mind to one or two cases that occurred to me. A little girl, who was stabbed in the thigh by an oyster knife, was brought to the City Hospital, without any history, two or three days after the injury. The wound was near the bottom of Scarpa's triangle. The thigh was enormously distended. There was an absence of pulsation in the foot below.

The diagnosis of traumatic aneurism was made. The vessel was controlled above and the sac having been laid open I turned out a large quantity of slightly solidified blood amounting to, I should think, nearly a pint, and then found very easily the femoral artery cut and gaping. There was a case. What did I do? What everybody did at that time: I tied each end of the femoral artery, cut between, closed the wound. In these days we might easily have restored, perhaps, that artery, because it was a young child with a healthy elastic vessel. In consequence of the aneurism being traumatic, collateral circulation not having had time to restore itself, the main current being absolutely cut off and the patient dependent on the circulation of the large profunda, the tissues a good deal injured by distention and pressure, the life of the limb was jeopardized for several days. The child finally recovered, with a fairly useful limb and sloughing of one or two toes, and the mutilation went no further. There would seem to be no just reason why that artery could not have been safely sutured. The aneurism having been treated aseptically, I think there would have been a fair chance of saving the vessel and avoiding any peril to the limb itself.

<sup>13</sup> *Wien. klin. Woch.*, No. 34.

<sup>14</sup> *Deutsch. Med. Woch.*, Sept. 12, 1901.

<sup>15</sup> *British Medical Journal*, Nov. 23, 1901.

<sup>16</sup> *Berl. klin. Woch.*, No. 40.

<sup>1</sup> See page 323 of the Journal.

In the other case everyone was afraid to do anything, myself included. Other surgeons more distinguished than I had seen the case and passed it on. This was a case of arteriovenous aneurism of the iliac region, deep in behind Poupart's ligament. The pulsation was diffusive, the sound almost audible when you sat near the patient, and resembled a musical murmur or placental souffle, only much louder. It was evident that there was a communication, resulting from a wound, between the artery and vein, as evidenced by the livid circulation in the limb, musical sound, etc. How long the man lived I do not know. It was before the days of asepsis. It was concluded that cutting through behind the peritoneum to reach a doubtful condition of things at the junction of the vein and artery, inasmuch as the man was not in immediate danger of dying, was too great a peril. It is not, perhaps, to be wondered at that surgeons hesitated in view of the chances, of the certainty I may say, of supuration, the chance of peritonitis, and the probability that the hemorrhage would be so great that you would lose your landmarks and not be able to control it. Now, it seems to me, with aseptic methods, vessel after vessel might be sutured or tied, according to circumstances.

DR. MARCY: I have no experience in the suture of arteries. I am familiar with the work of Dr. Murphy. With reference to the suturing of veins, I would like to speak of two or three cases. My first case was a suture of the axillary vein, where it was badly torn. The vein was larger than usual. The subsequent recovery was simple and easy. The femoral vein, by accident, I opened where it was varicosed in an extraordinary way, with an incision I suppose three-fourths of an inch long, and the vein itself easily admitted a finger. I sutured this, with perfectly easy recovery. I used a very fine needle, round, without cutting edges, the eye near to the point, and a very fine tendon suture, making a double stitch, bringing the enclosed parts together in the manner of a shoemaker, and thus closed the intima of the vein without any danger of leakage. I think this method of suturing a vein is a very desirable one. I believe the suturing of arteries opens a new and very interesting field.

DR. HUBBARD: The cases by his method on men were all successful. Murphy and Kummell have each done one and a Russian, Pacha, is reported to have done two more; so that there are probably four or five in all.

D. HUGH CABOT read a paper entitled

A CONTRIBUTION TO THE STUDY OF CATGUT AS A SUTURE AND LIGATURE MATERIAL.<sup>2</sup>

DR. MARCY: I am interested in this subject of buried sutures for a good many reasons, and if for no other purpose I should like to rise to express my approval of the paper to which we have listened. It seems to me there is very little to be added. I would like to call attention to the magnificent paper that was published in 1827 by Dr.

Jameson of Baltimore, a name perhaps unknown to almost all of you. He certainly was the originator of the buried animal ligature, of its introduction and its dissemination. So rapidly did it become a favorite material for the ligation of arteries, following Dr. Jameson's essay, which was given a prize and republished in pamphlet form, that it was used by nearly all the leading surgeons of that day and many of the leading men in London, and why did it lose its position and, like many another most excellent discovery, go into forgetfulness almost without a history? The pages of the surgeries of that day, and following to the day to which Dr. Cheever has made mention, were filled with hundreds of long articles upon that doubtful question of wound inflammation, and, in the heat of the controversy over it, failing to recognize the fundamental cause, it naturally fell into forgetfulness and ceased to be used. The variety of suture material at that time was something rather extraordinary. Some of the physicians got into very hot fever over the discussion of the shape of the ligature, one declaring it should be flat, another round, one that it should be hard, another soft; but Dr. Jameson's paper shows he compassed entirely the ground in reference to the subsequent result that followed the ligation of arteries in aseptic wounds, and as an extremely good operator he was fortunate in carrying out a series of experiments in the lower animals, in which he traced the absorption of the buried ligature in such a way as to show a permanent, vitalized constriction at the point of ligation. This work was so utterly forgotten that Mr. Lister knew nothing of it when he went to France to make his researches upon the ligation of arteries with catgut, but he traversed the same lines, perhaps more favored by the teaching of the new pathology, of which he still stands as the great master.

Following that came the possibility of burying sutures of other materials and for other purposes, and it was in 1870 that I took up the subject very much as Dr. Cabot, and with a long series of experimental studies attempted to show what became of the buried suture, at that time using only catgut, and under favorable conditions I found a demonstration so remarkable that I at first thought we had not only a transplantation of our buried tissue, but a vivification of it, so thoroughly did I find the reproduction in shape of the buried material. Later I determined that we had a proliferation of leucocytes, afterwards the leucocytes slowly changing to connective tissue corpuscles until they surrounded, later invaded, the foreign tissue thus implanted, and the result was a connective tissue band which took the shape of the buried suture. I placed a good deal of emphasis in my writing upon the subject that this was important as a reinforcement of the tissues, especially in the cure of hernia. I published a series of cases of hernia in 1870, cured after operation similar to that now in common use. I claimed the reconstruction of the parts was possible only by the use of the buried animal suture.

<sup>2</sup> See page 327 of the Journal.

You may overchromicize animal suture. I saw one removed that had been buried a whole year, and a piece I think ten or twelve inches long, so unchanged that the surgeon was unable to break it: it was black from its overchromization. The absorption of such material does not readily take place even in young healthy animals.

In reference to the burial of the suture there are many things I might, if the time was thought favorable, emphasize, and certain perhaps from which I would dissent. A suture buried in fatty tissue is likely, if you apply very much tension, to give trouble, resulting from fat necrosis; therefore, it is as rare as possible that I bury an animal suture in fatty tissues. Again, I thoroughly dissent from the interrupted suture wherever you may bury it. An interrupted suture is simply a ligature. A continuous suture is far to be preferred, has very many advantages. You can coapt far more accurately. I should as soon think of sewing a coat with interrupted stitches as I would the tissues of the body. In reference to the coaptation of the stronger tissues, in laparotomies nothing can be more important than to see that like tissues are joined and in such a way that you may have coaptation at rest, which means minimization of constriction in such a way that the parts may be held for the most easy revitalization of damaged structures. That means a great deal.

In reference to catgut, what has been said favorably of it may be said with much greater emphasis in reference to good tendon sutures for various reasons, which, however, is a little foreign to this discussion.

I have often noticed in the earlier days the criticism which Dr. Cabot properly makes of the interrupted suture that goes through and through the skin. The most rapid proliferation of tissue is in the deeper layer of the skin itself. As you pull gently upon a stitch you have left in the skin, in such a way that you may draw the loop through, you will find on the part where it was in juxtaposition to the vascular layer it has disintegrated to half its original size, showing how much more rapidly, at a certain point, the absorption of the suture material goes on. For that reason as one and for the fact that you are so likely to introduce infection from the deeper glands of the skin, etc., it is of the first importance to coapt the skin itself with a buried continuous suture; do it in such a way that your sutures are in the deeper layer below the follicles of the skin. With gentle tension upon the end of the suture you bring into easy coaptation the separated portions of the skin; they lie in juxtaposition, the suture is buried out of sight in the deeper layer only, and the iodoform collodion seal finishes the work of the surgeon for good or for ill before the patient leaves the operating table.

DR. LUND: I have felt that the prejudice against catgut was unfounded, and I believe that the people who stick to silk do it because they are afraid that catgut cannot be sterilized. I am sure it can be sterilized.

With regard to suturing fascia of the abdominal wall with fine sizes of catgut, in the majority of cases I should be unwilling to trust that entirely, especially as we frequently have to operate on cases which have a cough and are going to strain the abdominal muscles. I think in many cases we should reinforce the layer suture by a button and plate suture. I would not advocate that in all cases, but in many it is important. I do not believe fine catgut would be strong enough after eight days, and I have seen an abdominal wound come open after that.

Chromic catgut I think has the advantage of ease of handling at the time. When you are tying large vessels I think chromic catgut is about as easy to handle as silk, and has a slight advantage over ordinary catgut for this reason.

With regard to the point of tying three knots and cutting catgut ligatures long, I think it is a very important one.

Regarding subcutaneous catgut suture of the skin, I think it is a beautiful suture, and I have been in the habit of closing abdominal wounds and herniotomies in this way.

In regard to interrupted sutures, I think in many cases they have an advantage over the continuous, because you do not need the continuous all along the edges and put in more sutures than are necessary. With the interrupted suture you can get your strongest apposition where you need it.

Where you have two definite edges of fascia to unite there is nothing so good as continuous suture, as is especially shown in sewing Poupart's ligament to the conjoined tendon in hernia.

DR. F. C. COTTON read a paper entitled

#### NEGLECTED METHODS FOR THE STERILIZATION OF GUM-ELASTIC CATHETERS, ETC.\*

DR. HUGH CABOT: Since discussing this matter with Dr. Cotton some eight months ago, I have used this method of sterilization and been very well satisfied with it. It seems to me a very valuable contribution to our present methods of sterilization because it greatly increases the safety with which gum-elastic instruments can be used. In the methods of sterilization ordinarily employed, the life of a gum-elastic catheter is short and we are always in some doubt as to the efficiency of the method. By the method brought forward by Dr. Cotton we are ensured of absolute sterility, and a moderate experience with the method has convinced me that it does not injure the catheter and will, therefore, greatly increase the number of cases in which these instruments may be used with safety.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.—As announced elsewhere, this society will hold its second annual meeting March 28 and 29 at Cleveland, Ohio. The program is a long one, including forty titles, on varied subjects connected with pathology and bacteriology. The meeting promises to be a notable one.

\* See page 330 of the Journal.



## Recent Literature.

*Hughes and Keith: A Manual of Practical Anatomy.* By the late PROF. ALFRED W. HUGHES, M.B., M.C. (Edin.), F.R.C.S. (Edin.), etc., Professor of Anatomy, King's College, London; Edited and completed by ARTHUR KEITH, M.D. (Aberd.), F.R.C.S. (Eng.), Lecturer on Anatomy, London Hospital Medical College, etc. In Three Parts. Part 1, pp. 274. The Upper and Lower Extremities. Illustrated by 38 colored plates and 116 figures in the text. Philadelphia: P. Blakiston's Son & Co. 1901.

The volume before us, the first of three, has an added interest from the fact that its gifted author, Prof. Alfred W. Hughes, died before its publication—a victim of typhoid fever contracted while on duty at a hospital in South Africa. The partially prepared manuscript fell into the hands of Dr. Arthur Keith, who has accomplished his difficult task of editorship in a most satisfactory manner. The aim of the book is distinctly practical, and will form, when completed, an elaborate dissecting guide for students. The first part, the only one thus far published, includes a consideration of the upper and lower extremities from the topographical point of view. This arrangement is certainly to be highly commended; it permits of easy reference to any part of the human body desired and gives a description at once adequate and concise of the structures to be found there. As in most good textbooks of anatomy, plates and drawings are numerous; there are 38 plates and 266 other less elaborate illustrations, all admirably drawn and reproduced. So far as one may judge without actually having given it a trial in the dissecting room, the book fully meets the needs for which it was prepared. The work of the publishers is excellent throughout. An index concludes the volume. We await the later volumes with interest.

*Obscure Diseases of the Urethra.* By E. HURRY FENWICK, F.R.C.S. (Eng.). Surgeon to the London Hospital, Surgeon to St. Peter's Hospital for Urinary Diseases. With special chapters on Urethral Carcinoma and Calculus. By J. W. THOMSON WALKER, M.B. (Edin.), F.R.C.S. (Eng.). London: J. & A. Churchill. Philadelphia: P. Blakiston's Son & Co. 1902.

This little volume has the same finished quality that has characterized previous publications by its author. Its interest for the general medical reader lies in the presentation of the subject of urethral endoscopy and what may be accomplished by this means both in diagnosis and treatment of some of the obscure conditions which are ordinarily beyond the general practitioner's reach in a curative sense, while its value to the specialist is owing to its being a clear, terse summary of the work of this nature that has been done by one of the most skilful and experienced endoscopists in the profession.

The book sets forth the authors' manner of using the aëro-urethroscope, and the advantages, dangers and fallacies that it offers for the purpose of making minute examination of the diseased urethra; describes the appearances of certain of the urethral pathological conditions, and also gives the symptoms and treatment in a carefully considered and detailed manner. The volume is well illustrated, and will have particular interest for specialists in this branch of surgery.

*A Civilian War Hospital.* Being an Account of the Work of the Portland Hospital and of Experience of Wounds and Sickness in South Africa, 1900, with a Description of the Equipment, Cost and Management of a Civilian Base Hospital in Time of War. By the Professional Staff, ANTHONY A. BOWLBY, C.M.G., F.R.C.S.; HOWARD H. TOOTH, M.D., C.M.G., F.R.C.P.; CUTHBERT WALLACE, M.B., B.S., F.R.C.S.; JOHN E. CALVERLEY, M.B., B.S., M.R.C.S., and SURGEON-MAJOR KILKELLY, C.M.G., with numerous illustrations. New York: Longmans, Green & Co.; London: John Murray. 1901.

The comprehensive title of this volume of 348 pages gives a general idea of its scope. In times of war such books are inevitable, and usually welcome, as giving a picture of conditions which are quite unlike those ever met with in times of peace. The Portland Hospital, the history of which is narrated, was the first of the civilian hospitals to be equipped and sent to South Africa after the declaration of war, in October, 1900. After a description of the equipment and work of the hospital, the diseases met with are discussed at length, Wounds and their results naturally occupy a large share of the authors' attention, though the strictly medical aspect of the work is by no means neglected. A large number of appendices on a great variety of topics of interest, especially to army physicians, take up the last forty pages of the book. Much of the information regarding the medical aspects of the work done is similar to what has frequently found its way into print. It is, however, of much interest, and no doubt as cumulative evidence on many points is of distinct value, to the student of military medicine. The letter press is excellent and many illustrations serve to enhance the interest of the text.

*The Social Evil.* With Special Reference to Conditions Existing in the City of New York. A Report prepared under the direction of the Committee of Fifteen. Pp. 188. New York and London: G. P. Putnam's Sons; The Knickerbocker Press. 1902.

In our issue of Feb. 20, 1902, we commented editorially on the work undertaken by the New York Committee of Fifteen. A careful reading of the book serves to confirm our opinion, both of the conscientiousness of the committee and the difficulty of the problem it has set itself to solve. The volume is published in attractive form, is written in admirable style, and should have a wide circulation among thoughtful people.

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### ARE THERE TOO MANY SURGEONS?

TENDENCIES which mark the profession of medicine as a whole naturally find a reflection in the rank and file of medical students. It is not to be expected that the normal, average student should show marked originality in thought or in his conception of the possibilities of a medical career. He is, in the first place, usually a hero-worshiper, and in the second place a docile and unquestioning follower of the procession which has gone before. This is inevitable and, up to a certain point, desirable, provided his heroes be real heroes and the procession be in the right direction. It is, however, well to recognize the added responsibility which these facts impose upon the appointed leaders of medical thought and medical teaching. There is increasing danger that in our enthusiasm for special lines of work we shall lose sight of the relative importance of other branches in which we may profess small knowledge or interest. That attitude of mind on the part of a teacher which not only admits to his students ignorance, but also parades it unnecessarily, is not conducive to raising the standard of undergraduate opinion on medical matters. This we occasionally see; ignorance is unavoidable, but the disparagement of other branches of study, which at times accompanies it, is an influence of the most pernicious sort in the construction of a symmetrical science of medicine. An example in point, now much before the public, is the testimony of certain medical men, usually ignorant of the subject, against the practice of vivisection. Such men have done, and will, no doubt, continue to do, much harm, and exert influence proportionate to their position of popularity. A more generally practical instance of the attitude to which we refer, and which directly affects students, is the attitude of

the medical teacher who is inclined to disparage surgery or of the surgical teacher who looks upon medical problems with indifference. Controversies in such matters among physicians are usually stimulating, but to the student they are bewildering and conducive to wholly wrong points of view.

Upon the teachers of surgery rests unquestionably the greatest responsibility at this time. Surgery is having its day of achievement, and has impressed laity and physicians alike with its powers of accomplishment. Under the circumstances it is not strange that the young man ambitious to study medicine should have had his ideals shaped by this branch of medicine. Medical students as a class think of themselves as possible operative surgeons and direct their best efforts toward the preliminary attainment of surgical experience. The men in any given class of students of most capacity, fortunately with notable exceptions, choose, or would like to choose, surgical careers, and there is an evident tinge of disappointment if for any reason this ambition is incapable of gratification. This attitude, for obvious reasons, is natural, but it is none the less unfortunate, because it fails utterly to estimate the broad medical needs of the time and of the immediate future. Surgery is unquestionably the most fascinating field of medicine to the average mind. It holds out certain attractions, from the nature of its work, which no other branch is likely to attain, and for this reason it is the most hopelessly overcrowded. The time is rapidly passing when a man trained in surgery will be regarded as a competent physician, and no one knows better than practising surgeons in our large cities that all the operative surgery of the community may be done by a very small fraction of the number qualified by training and desire to do such work. In the meantime, what is happening? Medical students, following their predecessors, are struggling for surgical appointments, and, if successful, after an admirable training in surgical diagnosis and operative technique, are turned out with small opportunity for establishing themselves in their chosen line of work. In our large medical centres it will not be long before these men find themselves cut off from medical practice, for medicine now demands special training in the same sense that surgery does. What we need, and what most of all should be impressed upon the medical student, is a recognition of the fact that medicine now offers far greater opportunities to the industrious man than does surgery. Outside of the now limited field of operative surgery, the problems of medicine and surgery are identical, and yet we are continuing to train men in operative technique to the exclusion of branches which demand the most pains-

taking preliminary study, as, for example, medical diagnosis. There are slight signs of a change in the student attitude, but surgery still undoubtedly has a predominant place in popular student estimation. In the meantime, our laboratories are multiplying, opportunities for telling work are being offered as never before, and yet students are not to be found to take advantage of them. This is certainly one of the chief problems of our expanding medical education—to inspire enthusiasm for work in those fields in which work is needed, and in which it will give positive results, and, on the other hand, to divert it from lines which are already full to repletion. Just how this is to be accomplished it is not our present purpose to discuss. We must, however, bear in mind the fact that medicine in all its multiplying branches demands workers and offers careers as never before among the recent graduates of our best medical schools, whereas operative surgery has no such need. It is to be hoped that this knowledge may gradually find lodgment in the minds of our medical students before they reach a final decision as to future work in their profession.

#### SEX MORTALITY.

It has been a popular impression that women as a class are shorter lived than men. This impression gained weight, no doubt, from the dangers attending childbirth, which not many years ago found justification in statistics. We hardly realize the change which aseptic midwifery has brought about in the reduction of mortality from this cause. Beyond the supposed greater general weakness of the female sex there is not much left to justify an assumption that women have less chance for long life than men. The ardent and at times overzealous life insurance companies are apparently waking up to the fact that women may serve as "risks" as well as men, with the result that some of the more enterprising companies already have women's departments and even women medical examiners. From a purely mercenary point of view, which is naturally the insurance company's attitude, this is unquestionably a wise business stroke; it now looks as if no family, however feminine in its components, will long escape the omnivorous agent. This is not, in all respects, pleasant to contemplate, but it is certainly wholly in accordance with our present statistical knowledge.

In this connection certain figures and comments recently published in the *Medical Press* are suggestive. It appears that in the first years of life thirteen male children die to ten female. An explanation of this fact is not forthcoming. Between

the ages of ten and twenty slightly more females die than males, supposed to be due in great measure to the earlier appearance of tuberculosis in women. Owing to the remarkable lessening of mortality among women during the child-bearing period, the difference in the death-rate during these years may be ignored. After thirty-five, women have the advantage until the end of life, due probably to the earlier appearance of degenerative changes in men, leading to a premature old age and death. However inexact such statistics may be it is at least reasonable to suppose that they represent the general situation, and that we may hereafter consider that if any advantage exists for prolonged life it lies on the side of women rather than of men. The importance of this is self-evident, a fact which, as we have suggested, the life insurance companies are not likely to allow to pass unobserved.

#### MEDICAL NOTES.

**MEDICAL BULLETIN OF WASHINGTON UNIVERSITY.**—This is a new medical publication which will be issued quarterly by the Medical Faculty of Washington University. It is published for the benefit of the alumni of the school, and will contain original communications, clinical reports, department notes and items of personal interest to its graduates. It is hoped by this means to maintain a permanent bond of union between the university and its former students, which will prove of real value to both. The editors will welcome brief medical papers, and also all matters relating individually to the alumni, such as changes of residence, appointments, etc.

**DR. MORIZ KAPOSI.**—Dr. Moriz Kaposi, professor of dermatology and syphilology at the University of Vienna, died on March 6 at the age of sixty-five. Dr. Kaposi was a native of Hungary, and while a student at Vienna under Hebra, attracted his attention and received through him an appointment on the staff of the university clinic. His relations with Hebra were always of the closest, both professionally and socially, due, in a measure, to his marriage with Hebra's daughter. While he contributed much to the literature of dermatology, Kaposi's greatest success was as a clinical teacher.

**INTERNATIONAL MEDICAL CONGRESS.**—The fourteenth session of this congress will be held at Madrid, Spain, from the 28d to the 30th of April, 1903. The Spanish minister of foreign affairs has invited various governments to be represented at the congress. A similar invitation has been sent to all universities, schools of medicine and to the leading medical societies of all

nations. To facilitate the work of the general secretary it is desired that those who intend being present at the congress send their membership fee of from 23 to 25 francs as soon as possible.

**SMALLPOX AMONG NEGROES.**—From the weekly bulletin of the Chicago Health Department we learn that, with only  $1\frac{1}{2}\%$  of the total population of the city, the negro contingent has furnished nearly 80% of the last group of smallpox cases. Between March 4 and March 22 there were 84 cases found—7 white and 27 colored, a proportion of 79.4% of colored. Of course not one of these, either white or colored, had ever been vaccinated. This is a shame and a disgrace to two classes of the community: first, the more intelligent among the colored who fail to use their influence, as leaders and instructors, to promote vaccination among their people; and, second, to every employer, whether white or colored, who neglects to comply with the ordinance which specifically commands him "to cause and procure that every minor or individual in his care, custody or control shall be so promptly, frequently and effectively vaccinated that such individual shall not take, or be liable to take, the smallpox."

**SCHOOL FOR CRIPPLED CHILDREN NEAR PHILADELPHIA.**—Estimates have been submitted for the erection of a training school for crippled children at Logan, a suburb of Philadelphia, by P. A. B. Widener, as a memorial to his wife. It is his intention to establish a home, hospital and school for crippled children where they can be cared for if helpless, receive medical and surgical aid, and receive a general education and instruction in such industrial pursuits as will assist them toward self-support. The cost of the building, equipment, furnishings and site, including endowments, will be about \$2,000,000.

**SUMMER SCHOOL AT UNIVERSITY OF PENNSYLVANIA.**—A summer school will be opened at the University of Pennsylvania Medical School the last of June for the benefit of practising physicians. The work will be entirely post-graduate and largely in the nature of research. Courses of instruction will be offered in twenty-five branches, and will be arranged to suit the students. The teaching staff of the school will give the instruction, which will be increased in scope when the new laboratories are opened for use.

**PRIZE OFFERED BY DR. S. WEIR MITCHELL.**—The board of trustees of the University of Pennsylvania has accepted the offer of Dr. S. Weir Mitchell, made some time ago, to establish a prize, of the annual value of \$50, for the best original investigation on "The autumnal coloration of plant parts." The competition will be open to students in botany at the university.

**A PORTRAIT OF DR. JOHN MORGAN.**—A copy of a portrait of Dr. John Morgan, founder of the University of Pennsylvania Medical School, and painted by Angelina Kaufman, it is reported has been presented to the university by D. T. Watson of Pittsburg. Dr. Morgan was a member of the first class which graduated from the university.

**CHOLERA IN MECCA.**—It is reported that pilgrims are fleeing to Jedda (sixty miles west of Mecca) from Mecca on account of the epidemic of cholera in the Holy City. On one day there were 280 deaths from cholera. The pilgrims numbered 240,000.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, Mar. 26, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 43, scarlatina 13, measles 184, typhoid fever 6, smallpox 15.

**DIMINUTION IN NUMBER OF SMALLPOX CASES.**—Sporadic cases of smallpox only are now being found in Boston. Many of the new cases are tramps and persons of no fixed habitation.

**REPORT OF MASSACHUSETTS HOSPITAL FOR DIPSO MANIACS AND INEBRIATES.**—The tenth annual report of this institution shows that 720 patients have been under the care of the hospital during the year, 391 of whom have been committed during the year. The daily average number of patients in the hospital shows an increase of nearly twenty-two over that of last year. Of the 324 patients discharged during the year ending May 5, 1901, 86.11 are reported as wholly abstinent, 11.11 as improved, 89.81 as unimproved, 11.11 as not found and 1.85 as dying after leaving the hospital. All patients so reported on have been out of the hospital at least two months.

**VITAL STATISTICS OF BROOKLINE, MASS.**—During 1901 there were 273 deaths in the town of Brookline, according to the annual report of vital statistics. Of these 138 were males and 135 females. Of this number 29 were due to pneumonia, 40 to heart disease, 22 each to old age and brain diseases, and 18 to accident and suicide. There were 481 births recorded during the year, 244 being males and 237 females.

#### NEW YORK.

**PHYSICAL INJURY AS A CAUSE OF TUBERCULOSIS.**—Another case has been adversely decided in the courts regarding the alleged causation of acute pulmonary tuberculosis from physical injuries. A jury awarded Mrs. James Hoey a verdict of \$12,500 in a suit brought by her against two street railway companies for the death of her hus-

band from rapid consumption, which, it was claimed, was proximately caused from injuries received in a collision between two cars. The trial justice, however, ordered a dismissal, and his decision is now affirmed by the Appellate Division of the Supreme Court of New York. The court, after adopting the definition of proximate cause given by the Court of Appeals in the famous Laidlow against Sage case, continues: "There is no doubt that the deceased sustained very serious injuries in the collision, and by reason thereof, within a short time thereafter, developed what is termed in the record 'progressive muscular atrophy'; but there is nothing in the evidence which would justify a finding that the tuberculosis which resulted in his death was caused by, or necessarily flowed from, that disease." After referring to the accepted nature of tuberculosis as a germ disease and the manner of its contraction, the opinion goes on to say: "What is claimed is that the intestate's condition was so weakened by his injuries, and the disease resulting from them, that is, progressive muscular atrophy, that it made him susceptible to tuberculosis, and by reason thereof he contracted it. There is nothing in the evidence to sustain this claim, and such conclusion is based upon conjecture and speculation alone. To entitle the plaintiff to recover, she was bound to prove that the death of the intestate was the direct result of his injuries; that his injuries were the cause, and his death the effect—an unbroken chain extending from the cause to the effect, and any link in that chain could not be supplied by a mere possibility. If it could, then it is not difficult to see how easy it would be to take property from one person and give it to another, sanctioned by judicial procedure. The negligence of the defendants may have been the cause of the intestate's death, but whether it was or was not is a pure guess, and nothing more, and a judgment in law cannot stand upon a guess or bare possibility."

**A PHYSICIAN'S TESTIMONY.**—A judgment for the plaintiff in an action against the Brooklyn Heights Railroad Company has been reversed by the Second Appellate Division of the Supreme Court because the ambulance surgeon was not allowed to testify as to statements made to him by the injured man while on his way to the hospital in which he was treated. These statements concerned the manner in which the accident happened, and were admissible, the court holds, because it did not appear that the information disclosed by the injured man could have any possible bearing upon the surgeon's professional conduct or action. The rule is that a trial court cannot properly exclude testimony from a physician as to information which he acquired on at-

tending a patient, unless the information was necessary to enable him to act in his professional capacity. There was, therefore, no violation of the law prohibiting physicians from disclosing information acquired in attending a patient, for in this case the statements made by the patient concerned the accident, did not have reference to his injuries, and were not necessary to enable the doctor to act in a professional capacity.

**MORE PUBLIC BATHS IN TENEMENT DISTRICTS.**—A mass meeting was held on March 13, in the interest of more public baths in the crowded tenement districts of the city, and at its close resolutions urging the municipal authorities to give the East Side more baths, in accordance with the pledge of the Citizens' Union platform, were adopted. Among the speakers was Prof. Charles Sprague Smith, who stated that Liverpool, with a population of 668,000, had spent on public baths more than all American cities combined, while Glasgow, with 732,000 inhabitants, had twelve public baths and five swimming-pools. The Continent, especially Germany, which seemed to have received a stimulus from Great Britain, was not far behind. As a rule, it was assumed in Germany that there should be one swimming bath for every 25,000 of the population. In Japan, Tokio had 800 public baths and 300,000 daily bathers, in a population of a little over 1,000,000. In this country, Boston seemed to take the lead.

**FOURTH TRIAL OF A SUIT FOR DAMAGES.**—The fourth trial of the suit brought by Miss Helen Ward against St. Vincent's Hospital, to recover \$30,000 damages for injuries alleged to have been received by improper treatment at the hospital, resulted on March 21 in a verdict in her favor for \$19,420, which includes an allowance for counsel's fees. It will perhaps be remembered that Miss Ward, who is a sister-in-law of ex-Judge Henry E. Howland, had an operation performed on one of her legs, while she was a private patient at the hospital, and that after the operation a nurse carelessly allowed a hot-water bag to remain in contact with the limb, in consequence of which, it was claimed, permanent injury had resulted. At the first trial of the suit the case was dismissed; the second resulted in a disagreement of the jury; and on the third trial she secured a verdict for \$10,000. The case was then appealed, and the Appellate Division reversed the judgment, on the ground that the hospital was not bound to provide a patient, even though a private one, with its best nurse, and ordered a new trial.

**ANTIVACCINATION AGITATION.**—The compulsory vaccination bill at Albany was recently killed in the Committee on Public Health, to which it had been referred, and since then the

antivaccinationists have had introduced in the legislature a bill repealing the sections of the public health law, which require compulsory vaccination in all children attending public schools in the State. The bill also includes provisions for the appointment of a commission to investigate the nature and value of vaccination, antitoxins, and other "alleged" prophylactics.

**PUBLIC BATHS.**—At a meeting of the Board of Aldermen held March 18 appropriations of \$300,000 for public baths in the borough of Manhattan and \$180,000 for baths in Brooklyn were voted. With the \$300,000 appropriated for Manhattan three baths will be erected, each of which is to have double the capacity of the Rivington Street bath, now in operation. They will be permanent buildings, open all the year, and are not intended to supersede the summer free swimming baths along the river fronts.

**OPPOSED TO ONE SUPERINTENDENT.**—At a meeting of the New York Academy of Medicine held March 20 a resolution was adopted similar to that passed by the Medical Association of the Greater City of New York, protesting against the placing of 4,000 insane patients on Ward's Island under the medical supervision of one superintendent, and urging that there be not less than two superintendents.

**NU SIGMA NU MEDICAL FRATERNITY.**—At the twelfth biennial convention of the Nu Sigma Nu Medical Fraternity, representing twenty-one leading medical colleges of the United States and Canada, which was recently held in Cincinnati, Dr. E. K. Dunham, professor of pathology in the University and Bellevue Hospital Medical College, New York, was elected president.

#### ARMY NOTES.

**VENEREAL DISEASE AND ALCOHOLISM.**—In the effort to counteract the increasing frequency of alcoholism and venereal disease among troops in the Philippines and at other tropical stations, the War Department has issued an order which is in part as follows: "The only really efficient way in which to control the diseases due to immorality is to diminish the vice which is the cause of these diseases. Excessive indulgence in strong drink is absolutely certain to ruin any man, physically and morally; while disease due to licentiousness produces effects which are quite as destructive and even more loathsome. It is the duty of regimental, and particularly of company, officers to try, by precept and example, to point out to the men under their control, and particularly to the younger men, the inevitable misery and disaster

which follow upon intemperance and upon moral uncleanness and vicious living. The officers should, of course, remember always that the effect of what they say must largely depend upon the lives they themselves lead."

**CONTRACT DENTAL SURGEONS.**—The Secretary of War has decided that contract dental surgeons have no official relations to the surgeon of a post in which they may be serving; nor have their enlisted assistants, except that the latter may occasionally be attached to the local detachment of the hospital corps for rations and quarters. Contract dental surgeons and their assistants will be mustered separately from the medical officers and the hospital corps. Should it for any reason be necessary to recommend the excuse from duty of an officer or enlisted man on account of dental disease, the contract dental surgeon will report the case to the surgeon of the post, who will take it up on his register of sick and wounded, but no report of operations by the dental surgeon will be made except by him.

**CHOLERA IN MANILA.**—The War Department is informed that cholera has made its appearance in Manila, probably as a result of its importation from Hongkong, where the disease is prevalent. The Board of Health of Manila is using every endeavor to stamp out the infection, and to this end the importation of vegetable matter from China is prohibited, inspection and isolation camps have been established, the use of boiled water and cooked food enjoined upon the population of the city, and their hearty co-operation against this formidable peril urged. So far, there have been no cases of cholera among the soldiers, though sixteen cases with fifteen deaths occurred among the natives in two days.

**TO PREVENT THE RE-INFECTION OF HAVANA WITH YELLOW FEVER.**—General Wood has issued an order, which is as follows: "All persons non-immune to yellow fever, coming to the city of Havana from places infected with yellow fever, shall report at such time and place as directed by the chief sanitary officer of the city of Havana. The chief sanitary officer shall be the judge as to immunity and infection, and shall serve proper notice upon persons concerned." Violations of this order are to be punished by either a fine or imprisonment.

**MEDICAL CARE OF NATIVE CONSTABULARY IN THE PHILIPPINES.**—In view of the lack of proper civil hospitals in the Philippines, the Philippine Constabulary, a native force of 5,000 men, will hereafter be given the necessary medical attention by army surgeons in the military hospitals. The cost of this treatment is to be repaid to the War Department from the insular funds.



## Miscellany.

### "THE BARNUM OF SURGERY."

WE quote the following from the *Practitioner* as an example and a warning:

M. Doyen's newspaper report of his operation on Radica and Doodica has been made the subject of an amusing parody in that eminently respectable paper the *Temps*. The author records how he operated upon Dr. Doyen, whose exceptional cerebral activity had doubled his personality.

By ill luck the scissiparity was incomplete, the two persons remained attached to one another by a membrane extending from the umbilicus to the sternum. To distinguish them it was necessary to call one Radoyen, and the other Doyenka. This at first caused no inconvenience, but with increase of age troublesome disagreements, grave incompatibilities of character and temper became manifest between the two doubles.

It was determined to separate them, and my scientific aid was invoked. The operation did not last twenty minutes. I had invited my friends, the phenomena of Barnum and Bailey's circus, who are now indispensable to me. They were of the greatest use to me, particularly the man with the elastic skin. By stitching the skin of his abdomen to that of the abdomen of the living skeleton, I constructed artificial Siamese twins, on whom I made most interesting preliminary experiments. There were also present the armless man, who wrote at my dictation with his foot, and the pincushion man, who played a modest but indispensable part, as will presently be seen.

The two monsters, Radoyen and Doyenka, were placed upon a table invented by me, covered with a sheet sterilized by means of a preparation which is my property. I took up my position on their right, so that the cinematograph should lose nothing, either of my movements or my features. The superficial part of the portion of the membrane was formed by a cartilaginous plate of a certain thickness, which I divided with a bistoury made according to my directions. As is usual in my clinic, anesthesia was produced by means of chlorid of methyl. As I ceased to require my needles, my scissors and my forceps, I stuck them into the cheeks of the pincushion man—that is what he served for. Underneath the cartilaginous plate, I found, as was to be expected, a bridge of liver, seven centimetres in breadth by four in thickness, traversed by a large number of arteries, arterioles, veins and venules. This was the time or never to use my original method of hemostasis. I therefore performed extemporaneous crushing of the hepatic pedicle, by means of my large double lever forceps from Creusot, which weighs a million tons, but which can be set in motion by one finger, and which exerts a pressure of 600,000 kilos. . . .

Happily for posterity the operation was completed before the cylinders of the cinematograph were exhausted. Radoyen was first carried to a neighboring table, a compress invented by one of my usual assistants was placed in the wound, and the skin provisionally brought together with toothed forceps, of which I recently published a drawing. Then came the turn of Doyenka. I sutured his abdominal wall, taking care to leave in a small drain of gauze sterilized by my ordinary attendant, whom I cannot recommend to my confrères. The operation had succeeded. As for Radoyen and Doyenka, I hope they will get over it.

An immense concourse of people, which I estimate at seven millions, was waiting at the door of the hospital, and I had to escape from their acclamations. There were also seen under the windows twelve or fifteen hundred automobiles, among which could be recognized those of the King of the Kymris, of the dethroned Emperor of the Aztecs, of the Grand Duke of

Canzeberg, of Lord Untrue, of the Marquis de Las Pesetas ey Cambio, of Jobard Pasha, of the Ambassador of Andorre, of the Fencer Spada-Blanca, of Mademoiselle Suzanne Chaste the exquisite story-teller, in short, all Paris, including the private secretary of the Ministry of Submarine Communications, who had come in a cab. The Santos-Dumont No. 17,964 floated above my head performing a thousand sublime evolutions. The King of the Air was even good enough to ask me to dinner in his boat, but the wind not being particularly favorable, after a masterly descent I decided to go home by the tram.

The self-assertion and eagerness for notoriety which made themselves felt in every line of the original are scarcely exaggerated in this clever skit.

### A NEW LIMITATION TO PRIVILEGED COMMUNICATIONS.

On this important and knotty question the *New York Medical Journal* comments editorially as follows:

"A decision which has just been handed down in the Colorado Court of Appeals, to the effect that a nonresident physician testifying in a Colorado court, personally or by deposition, cannot seek the protection of the Colorado statutes, which say that a practitioner on the witness stand is not compelled to divulge anything which may have taken place between himself and his patient, places a limitation upon the definition of privileged communications which is, we believe, entirely new and one which, we further believe, will not be upheld by the courts in general. In the particular case in question, the physician, who was registered in the State of New Jersey, treated in that State a man who two years later applied for admission to the benevolent order known as the Woodmen of the World. Later, the applicant moved to Colorado and there died. The widow brought suit against the order to recover the amount of the benefit due her as the next of kin. The defendant sought to introduce a deposition from the physician in New Jersey to the effect that he had treated the deceased for consumption two years prior to the date of his application. This deposition was excluded from the lower court on the ground that it was based upon matter which was in the nature of a privileged communication. The Court of Appeals has now handed down a decision overruling the lower court and laying down the principle that a nonresident is not entitled to the protection of the Colorado statutes governing the matter of privileged communications.

"We have no information as to whether this case will be further appealed, and perhaps it may be looked upon as being definitely settled. It by no means follows, however, that the principle enunciated by the judge is one that will be, or should be, accepted as a precedent outside the State of Colorado, and it is much to be hoped that it will not be generally followed. It seems to us that the crux of the question lies, not in the registration of the physician in the particular

state in which his deposition or testimony is to be taken, but rather in his standing as a duly qualified physician in the state in which the acts took place between himself and his patient, in a professional capacity, which constituted the basis of the privileged communication in question. Under the ruling of the Colorado Court of Appeals, a limitation is placed upon the inviolability of professional confidence which may prove to be a serious disturbing factor in breaking up the confidential relations which must necessarily exist between the physician and his patient."

### ASBESTOS SHEATHING ON AMERICAN WARSHIPS TO PREVENT RHEUMATISM.

QUOTING from the *Brooklyn Eagle* the *Philadelphia Medical Journal* says: When the navy turned to building ships of steel it was remarked that, unless some device was adopted for offsetting the effect of heat condensing on the metal, it would be only a short time before all officers would be suffering from rheumatism. The introduction of metal chairs, tables and other pieces of furniture followed, and now there is no wood of any size to be found in an officer's room on a modern warship. He sleeps in an iron berth, keeps his clothes in a steel chest, while the floor, ceiling and walls of his apartment are of the same metal. Since the adoption of solid armor for the sides of warships, a great deal of trouble has been experienced in making habitable the quarters directly next the outside covering. The heat of the room condensed on the cold metal, and in a short time the occupant was in the hospital with rheumatism. This is now guarded against by the use of a sheathing of asbestos placed next to the metal, held in place by a framework. This is found to absorb the moisture in a satisfactory manner. Care is also taken to see that the berths are not built against the outside of the vessel, but against one of the side walls, so that the sleeper will be as far as possible from the metal that comes in contact with the water.

### Obituary.

W. W. JOHNSTON, M.D.

DR. W. W. JOHNSTON, of Washington, D. C., died at Atlantic City Friday, March 21, of heart disease. He graduated from St. James College, Maryland, and subsequently took his doctor's degree at the medical school of the University of Pennsylvania in 1885. He became a successful practitioner and had for many years a large and increasing practice in Washington. His position at the national capital brought him into contact with many prominent men as a professional adviser. He was professor of the theory and practice of medicine in the Columbian University, and consulting physician to the Children's, the Garfield and Emergency Hospitals. Dr. Johnston was a member of the Association of American Physicians, of which he was for many years the treasurer, and of the American Climatological Association.

### METEOROLOGICAL RECORD

For the week ending March 15, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer Daily mean.	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.
		Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S...9	30.04	38	41	35	94	95	64	S E	N W	17	16	R. O. .57
M...10	30.14	40	46	35	67	60	64	N W	N W	24	8	C. C. .8
T...11	30.32	42	51	33	78	85	82	E W	S W	4	20	F. O. C. .
W...12	29.92	56	69	43	64	70	67	S W	S W	14	16	O. C. C. .
T...13	29.62	52	65	40	82	100	91	S W	N W	18	7	O. R. C. .
F...14	30.32	38	41	34	55	60	58	N E	N E	16	4	C. C. C. .
S...15	30.50	40	47	32	64	71	68	W	S E	4	9	C. C. C. .
Mean	30.12	51	36			75						.70

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
Mean for week.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 15, 1902.

CITIES.	Population* Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Cerebro- spinal Men- ingitis.	
New York . . .	3,685,352	1,358	471	23.71	14.87	5.89	.44		.37
Chicago . . .	1,852,828	554	193	21.84	20.93	1.98	.73		
Philadelphia . . .	1,249,624	528	182	23.02	16.82	3.21	3.78		
St. Louis . . .	608,717	—	—	—	—	—	—		
Baltimore . . .	625,330	175	49	19.43	12.00	.57			
Cleveland . . .	411,826	—	—	—	—	—	—		
Buffalo . . .	375,742	—	—	—	—	—	—		
Pittsburg . . .	341,401	132	36	22.72	20.45	.75	9.09		
Cincinnati . . .	332,032	—	—	—	—	—	—		
Milwaukee . . .	304,975	—	—	—	—	—	—		
Washington . . .	269,537	—	—	—	—	—	—		
Providence . . .	185,870	62	17	17.71	17.71	—	—		
Boston . . .	588,736	255	77	21.56	16.85	1.57	.78	1.17	
Worcester . . .	127,387	27	14	7.40	14.80	—	—	3.71	
Fall River . . .	111,872	32	19	25.00	28.12	3.12	—	—	
Lowell . . .	99,574	36	10	19.34	16.66	2.77	—	—	
Cambridge . . .	96,334	25	12	82.00	20.00	8.00	—	—	
Lynn . . .	71,144	7	3	28.60	42.90	—	—	14.30	
Lawrence . . .	67,275	22	4	9.69	13.63	—	4.54	—	
Springfield . . .	66,654	15	2	13.33	20.00	—	—	—	
Somerville . . .	65,882	15	4	20.00	13.33	—	—	—	
New Bedford . . .	65,574	21	7	14.28	23.80	4.76	—	—	
Holyoke . . .	49,065	13	3	46.20	15.46	7.70	—	—	
Brookton . . .	43,206	9	—	11.11	—	—	—	—	
Haverhill . . .	40,392	11	—	27.27	18.18	9.09	—	—	
Salem . . .	36,567	17	4	5.88	11.76	—	—	—	
Newton . . .	36,436	7	3	—	14.30	—	—	—	
Malden . . .	35,390	14	5	7.14	14.28	—	—	—	
Chelsea . . .	35,264	15	—	6.66	—	6.66	—	—	
Fitchburg . . .	33,848	4	2	25.00	—	25.00	—	—	
Taunton . . .	32,750	7	—	42.90	—	—	—	—	
Everett . . .	27,114	5	1	—	—	—	—	—	
North Adams . . .	26,583	4	1	25.00	25.00	—	—	—	
Gloucester . . .	26,121	—	—	—	—	—	—	—	
Quincy . . .	25,307	7	1	42.80	14.30	—	—	—	
Waltham . . .	21,612	9	2	11.11	11.11	11.11	—	—	
Pittsfield . . .	22,311	3	—	33.33	—	—	—	—	
Brookline . . .	21,679	—	—	—	—	—	—	—	
Chicopee . . .	20,390	5	3	—	—	—	—	—	
Medford . . .	20,014	4	2	—	25.00	—	—	—	
Newburyport . . .	14,478	8	—	25.00	12.50	—	—	—	
Melrose . . .	13,384	—	—	—	—	—	—	—	

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,443; under five years of age, 1,110; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal

diseases, whooping cough, erysipelas, fevers and consumption 773, acute lung diseases 568, consumption 400, scarlet fever 46, erysipelas 21, typhoid fever 46, whooping cough 16, cerebrospinal meningitis 15, smallpox 24, measles 32, diarrheal diseases 73.

From whooping cough, New York 7, Chicago 3, Philadelphia, Baltimore, Boston, Worcester, Clinton and Revere 1 each. From cerebrospinal meningitis, New York 5, Providence 1, Boston 3, Marlboro 2, Worcester, Lynn, Pittfield and Hyde Park 1 each. From scarlet fever, New York 26, Chicago 11, Philadelphia 2, Baltimore 1, Pittsburg 2, Boston 2, Fall River and Westfield 1 each. From erysipelas, New York 7, Chicago 4, Philadelphia 3, Pittsburg 2, Boston 5. From smallpox, New York 11, Philadelphia 6, Baltimore 2, Boston 4, Newburyport 1. From typhoid fever, New York 6, Chicago 4, Philadelphia 20, Pittsburg 12, Boston 2, Lawrence and Holyoke 1 each.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,008, for the week ending March 1, the death-rate was 23.3. Deaths reported 6,633; acute diseases of the respiratory organs (London) 733, whooping cough 122, diphtheria 90, measles 166, smallpox 84, scarlet fever 45.

The death-rate ranged from 10.6 in Aston Manor to 29.3 in Hastings; London 28.2, West Ham 22.3, Croydon 24.6, Brighton 24.3, Portsmouth 19.8, Southampton 20.3, Bristol 22.1, Birmingham 20.8, Leicester 19.5, Nottingham 16.9, Birkenhead 25.5, Liverpool 24.5, Manchester 21.8, Salford 24.4, Bradford 17.6, Leeds 21.2, Sheffield 19.1, Hull 16.5, Newcastle-on-Tyne 25.7, Cardiff 21.0.

#### OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MARCH 13, 1902.

STONER, J. B., passed assistant surgeon. To proceed to Cape Charles Quarantine and assume temporary charge of the station during the absence on leave of Assistant Surgeon C. W. Wille. March 13, 1902.

HOBBS, W. C., assistant surgeon. To proceed to Savannah Quarantine and assume temporary charge of the station during the absence on leave of Acting Assistant Surgeon W. J. Linley. March 7, 1902.

BILLINGS, W. C., assistant surgeon. To proceed to Ludington, Mich., for special temporary duty. March 8, 1902. Relieved from duty at Chicago, Ill., and directed to proceed to New York, N. Y., and report to Surgeon G. W. Stoner for duty. March 7, 1902.

MOORE, DUNLOP, assistant surgeon. Relieved from duty at Honolulu, T. H., and directed to proceed to Yokohama, Japan, for duty in the office of the U. S. Consul-General. March 6, 1902.

WILLE, C. W., assistant surgeon. Granted leave of absence for 10 days from March 21. March 8, 1902.

BOGGS, J. S., assistant surgeon. To proceed to Delaware Breakwater, Del., and assume temporary charge of the station during the absence of Assistant Surgeon C. H. Lavinder. March 7, 1902.

CAMINERO, H. S., acting assistant surgeon. Granted leave of absence for 30 days from March 5. March 11, 1902.

HOUGH, J. S., acting assistant surgeon. Relieved from duty at Yokohama, Japan, and directed to proceed to Hongkong, China, and report to Assistant Surgeon J. W. Kerr for duty in the office of the U. S. Consul-General. March 6, 1902.

LINLEY, W. J., acting assistant surgeon. Granted leave of absence for 9 days from March 15. March 12, 1902.

BECK, J. E., junior pharmacist. Upon being relieved by Junior Pharmacist G. A. Morris, to proceed to Mobile, Ala., and report to medical officer in command for duty and assignment to quarters. March 7, 1902.

MORRIS, G. A., junior pharmacist. Relieved from duty at Havana, Cuba, and directed to proceed to Fort Stanton, N. M., and report to medical officer in command for duty and assignment to quarters, relieving Junior Pharmacist J. E. Beck. March 7, 1902.

#### SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY. SURGICAL SECTION.—The next meeting of the Surgical Section will be held at the Medical Library, 8 The Fenway, on Wednesday evening, April 2, at 8.15 P.M.

Dr. M. C. Smith will present "Plaster Casts of Deformed Mouths"; Dr. E. W. Cushing will read a paper on "Atypical Cases of Appendicitis"; Dr. C. G. Cumston will read on "Intestinal Invagination in Children with the Report of a Case Successfully Treated by Laparotomy."

F. S. WATSON, M.D., Chairman,  
F. B. LUND, M.D., Secretary,  
529 Beacon Street.

AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.—The American Association of Pathologists and Bacteriologists will hold its second annual meeting in Cleveland, Ohio, March 28 and 29, 1902.

ASSOCIATION OF MEDICAL OFFICERS OF THE ARMY AND NAVY OF THE CONFEDERACY.—The Association of Medical Officers of the Army and Navy of the Confederacy will hold its annual meeting in the Judicial Room of the City Hall in Dallas, Texas, corner of Akard and Commerce Streets, on Tuesday, April 22, 1902, at 12 M.

DEERING J. ROBERTS, M.D., Secretary,  
Nashville, Tenn.

#### RECENT DEATHS.

DR. ROBERT ELLEGOOD, a prominent physician of Delaware, died at his home, near Laurel, Saturday, aged seventy-four.

DR. GEORGE W. CUSHING of Brooklyn, N. Y., died on March 21. He was graduated from the Long Island College Hospital in 1874, and was well known as a gynecologist.

DR. F. H. THOMPSON, a widely known physician in the United States service, died recently at the Seattle (Wash.) General Hospital after a lingering illness, of typhoid fever. Dr. Thompson was one of the officers of the Coast and Geodetic Survey steamer "Patterson." He was a Canadian by birth.

DR. OREN DAY POMEROY, a distinguished New York specialist in diseases of the eye and ear, died after a lingering illness on March 18, at his country home at Whitestone, Long Island. He was graduated from the College of Physicians and Surgeons, New York, in 1860, and was sixty-eight years of age. Dr. Pomeroy was the author of a systematic treatise on diseases of the ear, published by the Appletons, and of numerous other writings. He was attending surgeon to the Manhattan Eye and Ear Hospital, and consulting surgeon to the Eye and Ear Infirmary at Paterson, N. J.

DR. JOHN E. RICHARDSON, a prominent surgeon of Brooklyn, N. Y., died on March 23 at the age of fifty-one. His death was due to a malignant growth of the neck, from which he had suffered for quite a long time. During the past winter it was treated by means of the x-rays, and for a time the effects appeared to be beneficial, but about six weeks ago he became so much debilitated that the treatment had to be discontinued. Dr. Richardson was born in Albany, N. Y., and received his education at the Polytechnic Institute, Brooklyn. He engaged in commercial pursuits for a time, and then determined to study medicine. He was graduated from the College of Physicians and Surgeons in 1877, and afterwards took a post-graduate course in Berlin and Vienna. On his return to America he served on the house staff of the Brooklyn Hospital, and then established himself in private practice, in which he was eminently successful. He was at different periods a police surgeon and surgeon to the Atlantic Avenue and the Long Island Railroad Companies, and at the time of his death was attending surgeon at the Orthopedic Hospital.

#### BOOKS AND PAMPHLETS RECEIVED.

"The Vexed Question of Vaccination" Again: Have we a Standard Glycerinated Virus? By F. J. Runyon, M.D., of Clarksville, Tenn. Reprint. 1902.

Transactions of the Luzerne County Medical Society, for the Year Ending Dec. 31, 1901. Vol. IX. Illustrated. Wilkesbarre, Pa.: The E. B. Yordy Co. 1902.

Gold-Blindness, or Retinal Asthenopia and its Treatment. By L. Webster Fox, A.M., M.D., Professor of Ophthalmology in the Medico-Chirurgical College, Philadelphia, Pa. Reprint. 1901.

The Technics of Nephropexy, as an Operation per se, and as Modified by Combination with Lumbar Appendicectomy and Lumbar Exploration of the Bile Passages. By George M. Edebohl, M.D., of New York, Surgeon to St. Francis's Hospital; Professor of the Diseases of Women at the New York Post-Graduate Medical School and Hospital. Illustrated. Reprint. 1902.

## Original Articles.

## ANGINA CRURIS (INTERMITTENT CLAUDICATION), AND ALLIED CONDITIONS, INCLUDING PAINFUL CRAMPS, WITH REMARKS ON THE IMPORTANCE OF EXAMINING THE PEDAL ARTERIES.

BY G. L. WALTON, M.D., AND W. E. PAUL, M.D., BOSTON.

THE affection for which we venture to suggest the name "angina cruris" has been discussed under various titles since its introduction by Charcot in 1858, principally in neurological publications. It has not yet received, however, the general recognition to which it is entitled, and has practically eluded the textbooks, both those on general medicine and those on the diseases of the nervous system. It is in the hope of arousing general interest in the subject that we have chosen this comparatively simple, easily assimilable, and (as it seems to us) fairly appropriate name, in preference to such elaborate and yet inadequate terms as "myasthenia paroxysmalis angiosclerotica" (Higier), "angiosclerotische intermittirende dysbasia" (Erb), or "intermittirende Muskelparese" (Grassman). The "claudication intermittente" of Charcot and the "intermittirendes Hinken" of Erb are sufficiently simple for general use, but are misleading, in that they unduly emphasize an unessential feature of the disorder (lameness) while drawing no attention to the essential symptom, namely, intense paroxysmal pain, a symptom which takes, perhaps, the first place among the associative memories aroused by the word angina.

Most of the names previously presented, even if appropriate, are ill adapted for general use, as applied, not to a neurological curiosity, but to a set of symptoms found with more or less frequency, though not in their severest form, in the practice of every physician and surgeon.

The clinical picture of well-developed angina cruris consists of more or less frequent brief attacks of intense paroxysmal pain in the leg, affecting as a rule the same region, oftenest the calf, recurring at irregular intervals, generally when in the erect position, but not infrequently while the patient is in bed, often accompanied by local asphyxia and cyanosis, and usually in a limb in which pulsation is wanting in the dorsalis pedis or the posterior tibial artery, or both. The attack resembles in its severity that of painful facial tic. The underlying cause is probably a restricted circulation (Charcot,<sup>1</sup> Erb,<sup>2</sup> Hagelstam,<sup>3</sup> Goldflam,<sup>4</sup> Dutil and Lamy,<sup>5</sup> Elzholtz,<sup>6</sup> Higier,<sup>7</sup> Oppenheim,<sup>8</sup> Marinesco,<sup>9</sup> and others), whether resulting from (a) the degenerative arterial changes incident to advancing years (atheroma), from (b) congenital predisposition to feeble circulation and to arteriosclerosis, or from (c) acquired arterial disease (obliterating arteritis, resulting, for example, from syphilis). Vasomotor spasm (common in persons of neuropathic inheritance) is generally regarded as the exciting cause of the attack, combined, per-

haps (Goldflam), with sudden accession of blood pressure. We shall not undertake to contribute to the already long list of theoretical considerations bearing on the pathology of the vascular occlusion, the pathogeny of the vasomotor spasm, or the exact seat of the pain, whether in vessel, nerve or muscle. We feel impelled, however, to confess our predilection for the view of Goldflam, that the pain is of vascular origin, conveyed, perhaps, as he suggests, from the sensory corpuscles in the vessel walls. It is true that simple pressure upon blood vessels is not productive of pain, and that simple vascular contraction and distention do not result in pain, but it is also true that simple pressure upon nerve trunks and nerve endings does not necessarily produce pain. This argument by no means precludes a susceptibility to pain resulting from a definite combination of mechanical conditions (for example, vasomotor spasm combined with increased blood pressure). Pain is primarily a cry of warning, contributing to our safety, and resulting from such conditions at the periphery as may do harm to the structures concerned. As instances of pain resulting from vascular rather than from nervous disturbance we need only name that resulting from embolus, from aneurism, from the continued application of the tourniquet, and perhaps that of migraine. Nor shall we dwell on the bearing of the study upon the paresthesias and pains of Raynaud's disease, erythromelalgia, and allied disorders. The reader who would pursue this line of investigation is referred to the articles of Charcot, Erb, Goldflam, Dutil and Lamy, Higier, Hagelstam, Mariensco, Haga,<sup>10</sup> Sternberg,<sup>11</sup> Van Ordt,<sup>12</sup> Laveran,<sup>13</sup> Panas,<sup>14</sup> Lancieux,<sup>15</sup> and others. Our main endeavor is to familiarize the practitioner with the clinical aspect of the disorder, to suggest that certain familiar but unclassified pains may represent a modified form of the malady.

Higier, Goldflam and Hagelstam have recently demonstrated the comparative frequency of the disorder by reporting eighteen, twenty-four and twenty-three cases respectively. These authors concluded that certain races (for example, the Semitic) were peculiarly subject to the complaint. We have collected in the past few months fifteen cases representing, as it seems to us, a modified type of the symptom, and one typical case, none of the individuals affected being included in the race mentioned; this tends to show that while the affection in its complete form is rare, allied conditions are of wide distribution, though the only previous cases reported under this category in American periodicals, as far as we can learn, are those of Putnam,<sup>16</sup> of Gordon,<sup>17</sup> of Riesman,<sup>18</sup> and of Dana.<sup>19</sup> \* In twelve of the sixteen cases pulsation was lacking in one or more pedal arteries.

It is significant that only five of these cases came to the Neurological Department of the hospital, and only one of these five for treatment of this particular symptom. Two cases were found

\* The case published by Dana presents a picture of unilateral arterial obliteration in a woman of seventy-eight without paroxysmal symptoms but with pain and paresthesia.

in the Surgical Department, in a routine examination of the arteries (allowed by the courtesy of Dr. Scudder). The others were not hospital patients, but persons whose histories we investigated with this subject in mind, after learning that they were sufferers from so-called "cramps" of unusual persistence and severity and of constant seat.

Comparatively few, perhaps, of the many sufferers apply for treatment of this particular symptom, and when they so apply, the case is diagnosed as cramp, sciatica, the result of flat-foot, internal varicose veins, or, perhaps, if the history is somewhat bizarre, as hysteria, its true nature remaining unnoted, unless indeed, as is occasionally the case, evidence of malnutrition or even local gangrene makes its appearance, in which event the minor complaints receive scant attention unless the practitioner chances to be familiar with the subject. The muscles are generally hardened during the attack, whether this hardening is the result or one of the causes of the pain; but the malady is not to be confounded with ordinary cramps of occasional occurrence and varying location. The possibility should be borne in mind, however, that the ordinary cramp, though innocuous, may be of analogous production as far as the ischemia, the vasomotor spasm and the temporary increase of blood pressure are concerned. It is significant that such cramps are practically limited to the lower extremities, in which mechanical conditions render the circulation less free than in the upper. The essential distinction in this event would be the pathological basis for continued impairment of circulation present in well developed angina cruris. In point of fact not a few sufferers from so-called simple cramps will be found on careful study to fall into the class of modified angina cruris.

The details of the following case will serve to present the picture of this distressing malady in its severest form. The patient presented himself at the Neurological Clinic of the Massachusetts General Hospital, and was recommended to the house, where he entered the service of Dr. F. C. Shattuck, through whose courtesy we were enabled to study and report the case. Material aid was furnished by the careful records of Dr. Locke.

**OBSERVATION I.** R. L. C., 38, married; English; a weaver.

**Family history.**—His father died of pneumonia at 54. Two sisters died in infancy; one brother and two sisters are alive and well. His mother was always morose, nervous and despondent; is now in the insane asylum. Her brother is also insane. The family is neurotic.

**Habits.**—Has not taken alcohol for four years. Before that drank one or two glasses of beer in the day.

**Patient's history.**—He had mumps and measles in infancy, scarlet fever at fourteen. As a child was nervous and was subject to frequent pains in the legs. Since eighteen years of age he has been subject, once or twice a month, to severe frontal and occipital headaches, lasting one to twenty-four hours, accompanied by nausea and vomiting (migraine). Venereal disease is denied.

Four and one-half years ago he was obliged to give up work for six months. During this time there is

history of diarrhea with rectal and vesical incontinence. Three years ago discontinued work in the mill and was confined in bed seven weeks with girdle pain and pain extending into the legs, with tingling and numbness and distinct loss of power in the legs. Improvement followed, then he became worse, and two years ago entered the Fall River City Hospital. Marked improvement followed and the pain and disturbance in motion entirely disappeared. After two months he took up peddling, but this work was interrupted by sharp pains, which always began in the lower legs and feet when he was in the erect posture. He was confined to his bed for five months, after which he was up and down until he entered St. Joseph's Hospital in Rhode Island. He was there two or three months without relief.

For three years the urine has been passed frequently and he has been subject to dizzy spells. He has gained weight of late. His sleep is poor. His sexual power is unimpaired. For several years previous to the onset of these symptoms he was under great strain; his wife was very ill and two children died. He has worried for fear of becoming insane. For the past year he has taken morphia, often two or three grains daily.

There is no motor loss in the legs, but he is subject to sudden attacks of intense pain in the calf, the outer side of the thigh and back of the knee, finally involving the whole leg. The pain is accompanied by heat and prickly feeling and sometimes by changing color of the extremities. The pain is so intense that he is obliged to stand holding the leg or to sit down. The spasm passes off as rapidly as it comes, after which he can walk with freedom. The pain sometimes comes when he starts to walk, again if he has walked a distance. He may continue to walk after having an attack, for perhaps three minutes, when another will occur. Movement in bed often produces similar attacks. He has had similar pain in the left leg, but no motor or sensory trouble in the arms. Cold weather aggravates the disturbance.

**Physical examination.**—The patient is well developed and nourished. The pupils are alike and react normally. The tongue is moist and clean. There are small glands in the left axilla and in the groins. The lungs and abdomen are normal. The apex beat of the heart is in the fifth intercostal space just inside the nipple; the force of the heart is fair; no murmurs; the second aortic sound is accentuated, the first sound at the apex sharp and booming.

The pulses at the wrist are equal and synchronous, volume and tension good. The pulse can be felt in the posterior tibial arteries, though its character is thin and weak. No pulse can be felt in the dorsalis pedis of either foot. Examination of the blood shows 75% hemoglobin, white corpuscles 21,600 at the first examination, 25,000 at the second.

The blood pressure, taken in the finger and in the second toe (by Dr. James Jackson), varies from 95 to 120 mm. of mercury. The blood pressure taken in the right toe during an attack increased from 95 mm. to 140 mm. This attack, which was a typical one, lasted thirty-four seconds.

Examination is negative as regards sensation and motion. The hip and other joints are free and normal. The knee jerk is exaggerated on both sides. No continuous ankle clonus is elicited, but the Achilles tendon reflex is increased. There is Babinski reflex on both sides, more marked on the left. The cremaster reflex is sluggish, the abdominal and epigastric reflexes wanting. Gluteus clonus frequently appears on the right side when he is standing, sometimes spontaneously, generally started by a tap.

There was marked edema in the right ankle and shin when the patient first appeared at the Out-Patient Department, and a slight edema on the left. This symptom disappeared after he had remained in bed twenty-four hours. In the Out-patient Department the whole right leg was distinctly colder to the upper thigh; both legs were somewhat cool after entering

the house (temperature of dorsum of right foot 82°, of right hand 87.2°).

Urine was of normal color, acid reaction, specific gravity 1.020, with no albumin and no sugar. The sediment was slight, containing no casts.

During his stay in the hospital there has been no diminution of the severity or frequency of the attacks, even when he has remained constantly in bed. The administration in turn of strophanthus and nitroglycerin gave no relief.

This case is noteworthy in presenting a neuropathic and psychopathic tendency, a tendency which has been regarded by most students of this subject an essential factor in the production of vasomotor spasm (Erb, Hagelstam, Van Ordt, Goldflam, Oppenheim, Higier and others). It is also of interest that the reflexes were exaggerated, a condition reported in one or two previous cases, and interpreted (Erb, Goldflam) as pointing perhaps to a defective circulation in the spinal cord, allied to that in the lower extremities. The thought naturally suggests itself that the paralytic seizure through which the patient passed three years ago may have been due to spinal syphilis. This diagnosis would in no way alter the status of his present attacks, but would merely point to specific disease as an important etiological factor in the arterial changes. It should be also noted that the patient was under the usual age of atheroma, and that no tortuosity or hardening or visible pulsation was present in the arteries, either at the wrist or temple. In the early study of the disorder the arterial degeneration incident to advancing years was deemed the essential factor (except in cases of recognized local or general cause of obliteration, as aneurism or syphilis), but many cases have now been reported varying from twenty to forty years of age, and a congenital tendency to arterial fibrosis is regarded as equally important. Sängér<sup>20</sup> has demonstrated, by the Röntgen rays, chalky deposit in the arteries in three cases, and emphasizes the importance of utilizing this aid in diagnosis.

The histopathology of the arterial occlusion in these cases is not definitely established. In each of the conditions mentioned all the arterial coats are liable to become thickened, in whichever coat the process may commence; and in all the varieties the lumen is liable to become narrowed and eventually obliterated. Upon this purely pathological branch of the subject we shall not venture to encroach.

Another point of interest is the increase of blood pressure demonstrated by Dr. Jackson. This is a branch of investigation to which little or no attention has been paid, but the result of Dr. Jackson's observation would tend to show that increased blood pressure is a factor in the production of the paroxysm. Further study in this direction is desirable.

In view of the question whether the increased blood pressure was merely a result of the movement made by the patient on account of the pain, Mr. Quinby, at the instance of Dr. Jackson, has tested the blood pressure during short periods of violent exercise and has found no appreciable increase.

With regard to the *etiology* of claudication, diabetes, syphilis, misuse of tobacco (and perhaps alcohol), gout, and exposure to wet and cold have been in turn emphasized, but further contributions have shown that none are essential. Two factors, however, appear with great frequency throughout the literature, namely, tendency to defective circulation and constitutional neuropathic taint.

The cases hitherto reported have been very largely males, and this sex has been regarded as peculiarly susceptible to the affection (Dutil and Lamy, Goldflam, Hagelstam, *et al.*). Our experience shows that the modified form to which we call attention is quite as common among females, for out of the sixteen cases which have come under our observation, nine occurred in women. In two of these cases the attacks first appeared during the latter half of pregnancy, tending to show that the increased pressure of the fetus may be added to the mechanical causes, and the question naturally presents itself whether certain cases of so-called "cramps" occurring in pregnancy and labor may not be allied to the symptom under consideration.

The following case will serve to illustrate this phase of the subject and to demonstrate the benefit of treatment directed towards aiding the circulation. The history is also suggestive of a neuropathic tendency such as might favor vasomotor spasm, and perhaps of an inherited circulatory equipment not quite adequate to withstand the strain imposed by childbirth and other conditions.

**OBSERVATION II.** Patient a widow, 67; American. Her mother was subject to severe cramps at night on account of which she always wrapped the limbs in a blanket; two sisters have been subject to attacks similar to those to be described in her own case, and one sister has been through an attack of phlebitis.

She has been subject to so-called rheumatic pains, such as lumbago. She has had two children, and early in the first pregnancy had dropsy. In the latter part of each pregnancy she was subject to severe cramps of short duration, without continuous pain or disturbance of gait. After the birth of the first child, thirty-five years ago, there was considerable pain and swelling of the legs, face, hands and whole body, and loss of vision. She was confined in bed for a number of months. On trying to reach an armchair she felt something snap in the calf of the left leg and suddenly lost power in all four extremities. The paralysis lasted several days and gradually disappeared. For a month previous she had been nervous, depressed and hysterical. In the course of a week after the onset of paralysis an abscess appeared on the outside of the left shin which was later opened. Both legs remained swollen, the left discolored, flexed and rigid. Gradual convalescence followed, and in nine months she was able to walk without crutches; in a few years she could use the leg as well as ever. The legs have been liable to swelling at intervals since that time, especially if tired. She has been subject to cramps for a number of years, recurring many times in each year and always confined to the right leg, sometimes in the calf, sometimes in the groin. The pain, especially when in the latter situation, has been so severe as to cause her to faint, but has been of brief duration (about half a minute). When the pain has appeared in the calf and foot it has been less severe and has lasted perhaps five or ten minutes. The attacks have invariably come at night. She was advised by one physician to tie a cord round the leg, by another to exercise.



Fifteen months ago the legs had been swollen for several weeks and there was distress in the precordium. On starting to rise a moderate cramp and pain appeared in the back of the right leg; this pain continued and increased and two days later she was confined to the bed. The diagnosis was made of phlebitis and venous thrombosis, the clot being plainly seen and felt on the inside of the right shin. She remained in bed two weeks; gradual recovery followed. During the past year she has worn an elastic stocking and avoided excessive use of the limbs. During this time there has been no recurrence of the cramp.

There are moderate varicose veins. The heart sounds are weak. The physical examination is negative as regards motion, sensation, reflexes and other functions. No pulse is to be felt in the posterior tibial on either side, and the dorsalis pedis pulsation is faint.

No further comment is required in presenting the salient points in the following:

**OBSERVATION III.** Female, 40, married, of Irish parentage. Has had nine children. With each pregnancy has been subject to severe cramps with pain sufficient to make her cry out. They have appeared about the middle of the term and increased in frequency until the child was born, appearing practically every day toward the end. The severity of the attacks remained unchanged throughout, pain being extreme from the first. The attack would appear while walking or on rising from the bed. She would be compelled to stand still, to hold and rub the leg, and be unable to take another step until the pain had passed. The last child was born two years ago, since which time the same attacks have appeared at intervals of perhaps a month. She has had no miscarriages, no eruption and no loss of hair. She is rather easily startled, worries and has various phobias. Her mother was rather high strung and of a worrying disposition, but there is no history of definite nervous or mental disease in the family. Between the attacks there is no limp, no paresthesia, no pain, no numbness or other disability. The physical examination is negative excepting that the posterior tibial artery is not felt on either leg. The dorsalis pedis is felt on both sides.

The following history is of interest in connection with the study of local malnutrition. It is true that evidences of malnutrition in the extremities may, and often do, appear without the least suggestion of angina. In certain instances, however, it would seem that the right combination of circumstances may produce the characteristic pains, and the study of these cases may aid in the solution of the difficult problems connected with the obscure general subject of nutritional disturbances.

The patient came to the Neurological Clinic with a probable diagnosis of mal perforans accompanying locomotor ataxia, but it appeared that the acute attacks of pain were always limited to the left leg below the knee. This history led to the examination of the arteries of the foot, which showed absence of pulsation. As the result of this study the diagnosis of angina cruris was established without precluding the possibility of early tabes.

**OBSERVATION IV.** Female. For twelve years has had pain in legs and back, with swelling of the legs. She has had occasional vertigo and some headache, but no vomiting. The bladder is irritable, but there has been no incontinence of urine. An ulcer appeared under the left great toe about six months ago and has persisted. The pain has always been limited to the left leg, never extending above the knee. Sometimes

she has paroxysms of intense pain, of brief duration, preventing walking, though sometimes the pain will persist several hours. She has had no children; no miscarriages; no eruption. She has lost her hair steadily for three years.

The left foot is cold and cyanotic, especially the great toe. There is no pulsation in the dorsalis pedis on either side. There is no loss of muscle sense or other form of sensation, and no loss of motion. The pupils are irregular, the right slightly larger than the left, of rather small size; reaction sluggish. The knee jerk on the left is increased, on the right very slight. There is a dry, black ulcer under the left great toe. There is no ataxia. There is very slight Romberg.

The patient was transferred to the Surgical Department, to which she was to report the next day for further examination and treatment, but has failed to reappear, so that we are limited to the above brief report of the case.

We append brief histories of a number of cases obtained with so little effort as to indicate that they represent nothing unusual. The frequent absence of pulsation in one or more of the arteries of the foot gives point to the observations.

**OBSERVATION V.** Female, married, 40, Irish. Two years ago she had an attack of unconsciousness lasting one hour, followed by right hemiplegia with aphasia. The condition persisted with athetoid movements and astereognosis. She has had five or six miscarriages, occurring at about the sixth month. She has had no living children. She has had no rash or sore throat. Her father had diabetes, her mother is in good health. Patient has had various paresthesias in the whole right side with loss of pain, touch, spacing and position senses. The Babinski reflex is present with increased knee jerk. Since the paralytic stroke she has been subject (up to two weeks ago) every morning, on waking and moving, to a sharp pain in the right calf lasting a few minutes without hardening of muscles, but with pain sufficiently intense to cause her to cry out, the foot becoming cold and white. No dorsalis pedis artery is to be felt on the right, the posterior tibial is normal, as also are both arteries of the left foot.

**OBSERVATION VI.** Female, 64, widow, American; has had three children. As long as she can remember has had cramps in both legs in bed, especially the latter half of the night; also cramps in the hands with strong flexion of the fingers. In the past year has noted in both legs, more in the left, on starting to walk that the leg feels weak from the hip down, causing her to stop for a few seconds. This trouble may occur in crossing the street or in playing the pianola. The left leg feels cold and is cold even on hot days. A crawling feeling occurs in the legs at times, and going-to-sleep feeling in both legs, more on the left. The right dorsalis pedis artery is prominent, the left is faintly perceptible; both posterior tibials are present. The knee jerk is normal. Her father was alcoholic and suffered from cramps. Her mother was subject to cramps so sudden and so severe as to cause her to drop objects from the hand.

**OBSERVATION VII.** Male, 69, American. Has suffered from cramps in both legs for years at night in bed. He has a weak, dilated heart. Edema of the legs is present. Dorsalis pedis arteries not perceptible. Pulsation is perceptible in both posterior tibials.

**OBSERVATION VIII.** Female, 36, American, of Irish parentage. Married. One brother and sister nervous. Self nervous (epileptic since sixteen years). Subject to cramps since girlhood for two or three weeks; always at night, especially if feet exposed, and always worse in cold weather. Attacks are of short duration, pain very severe. The dorsalis pedis is felt on both sides, the posterior tibial on neither. The knee jerk is active.

**OBSERVATION IX.** Female, 13, American, seen in Dr. Minot's clinic. Is subject to severe attacks of painful

cramps, sometimes at night, sometimes on walking. In latter event has to stop. Both feet affected, the left worse. Has these attacks several times a day. The cramp is generally in the calf. Is subject to similar attacks in the arm. The fingers are blue and cold, the right foot is very cold, the left warmer. The arteries are easily felt on the left foot, but on the right the dorsalis pedis is not felt, and the posterior tibial only faintly. The arteries of the upper extremity are rather small.

**OBSERVATION X.** Male, 48, American. Subject to pains at night on moving in bed. Sometimes has them a number of times in the night, especially during the latter part. Pain is extreme, generally in the calf, and lasts two or three minutes. Disappears rapidly if he straightens the leg. Dorsalis pedis on the left is very faintly felt. The other arteries are normal.

This patient complains of practically continuous fibrillary twitching in both legs, a symptom which has persisted for about three years without other objective sign (myokymia). It is suggestive that fibrillary twitching has been noted in several cases of claudication, and further study may show the connection between them. In the only other case of myokymia coming under our observation, however, the pedal arteries were apparently normal.

The following case was observed before our attention was called to the question of pulseless arteries, so that we are unable to complete the history in this respect, but the impairment of circulation is beyond question.

**OBSERVATION XI.** Male, American, married, died at 58 years of age. In the last months of his life general edema developed, due to a dilated heart and arteriosclerosis. The urine showed a trace of albumin and was of low specific gravity. Six years before death he first complained of cramps in the right leg, lasting from one to five minutes and subsiding slowly. These cramps always occurred in the early morning when the patient was in bed. At first the cramps occurred at intervals of some months and became more frequent though never oftener than every two weeks. Within a year of his death he was observed in one attack; he was pale, cold perspiration stood on his face and he seemed to be in agony. The pain in the calf of the left leg disappeared slowly after five or ten minutes' duration.

In addition it is only fair to insert a brief statement of several cases in which we found a history of painful cramps of varying frequency and severity, without definite signs of circulatory impairment. It is a question whether we should regard such cases as militating against the views advanced, or whether we should regard them as mild types of a similar disturbance, in some of which the functional element alone is present, while in others a physical basis perhaps exists, but is not sufficiently advanced to present marked signs at the points available for palpation.

**OBSERVATION XII.** Male, 41. A patient with ataxic paraplegia, seven years ago had an attack of so-called nervous prostration, since which time there has been numbness and unsteadiness of gait, with spastic tendency and increased reflexes with Babinski and clonus. He is subject to cramps of brief duration accompanied by intense pain every time he straightens the legs in bed. The pulse is felt in all four arteries of the feet, but the left radial artery is hard and tortuous.

**OBSERVATION XIII.** Female, 70, American, married, has been subject for some years to very severe cramps

with intense pain recurring every night for long periods. Has never suffered from phlebitis. There is much lameness and stiffness of the left leg especially about the knee. All arteries are felt plainly. There is flatfoot on the left side.

**OBSERVATION XIV.** Female, married, 40, American. Suffered from phlebitis in the left leg 18 years ago, since which time has been subject to occasional nocturnal cramps, accompanied by intense pain. The cramps always appear in the left leg. Pulsation is felt in all arteries.

**OBSERVATION XV.** Male, 44, American, a physician. Has been subject for several years to cramps in the calf occurring at night, accompanied by intense pain. Flatfoot is present. Since wearing a plate for the flatfoot, has been free from cramps, excepting on one occasion, after leaving off the plate the cramps occurred with such frequency and severity as to cause him to renew its use. Pulsation is normal in all arteries.

A review of these cases suggests that there is no sharp dividing line between (a) simple cramps with occasional occurrence and with moderate pain, and (b) severe and frequent cramps of constant seat, and (c) the classical type of angina cruris. In Observation XV it is noteworthy that the painful cramps disappeared after the use of the footplate, and that in Observation XIII flatfoot was present on the side affected with cramps, and that in both these cases the pulse was good in all the arteries of the foot.

The question presents itself, therefore, whether the cramps in such cases are of a different kind from those accompanying signs of poor circulation. The subject of one of these observations (a physician) suggests that possibly the cramps of flatfoot are due, in part at least, to alterations in the circulation of the foot brought about by the abnormal mechanical conditions. Dr. Goldthwait assures us, in this connection, that evidence of impaired circulation, as well as hyperidrosis, not infrequently accompanies flatfoot, and that these symptoms are often relieved by the use of the plate and of appropriate exercises.

The subject of cramps in general seems obscure, and it is to be hoped that the line of thought here offered may serve as a stimulus for their future study.

If it were found an invariable rule that painful cramps are accompanied by pulseless arteries, the proposition might be regarded as practically established, but this is by no means the case. We have already cited cases in which cramps appeared without pulseless arteries, and the following observation illustrates the converse relation. In this case no pulsation was felt in the dorsalis pedis, posterior tibial or popliteal arteries, but no pain was present severe enough to suggest angina. The patient did, however, complain of troublesome paresthesia, a symptom often present in sufferers from this disorder.

**OBSERVATION XVI.** J. D. S. (patient of Dr. Fitz), 42, laborer, Irish; had typhoid fever two and one-half years ago, complicated by gangrene of the left leg, which was amputated above the knee. Since that time he has suffered from burning and prickling of the thighs extending up the back to the waist line. His sleep is impaired and he frequently has to change his position at night to seek comfort. The right leg has been losing power during the past year. The ra-

dial pulse is weak, the artery small. No pulsation is felt in the dorsalis pedis, the posterior tibial, or the popliteal artery of the right leg.

With a view to determining the frequency of pulseless pedal arteries in health, and in persons not complaining of painful cramps, we have examined 200 individuals of whom the majority were in good health. These individuals have varied from old age to early infancy. Our thanks are due to Dr. Morse for allowing us the privilege of his clinic at the West End Nursery; also to Miss Amy Morris Homans, the director of the Normal School of Gymnastics, for the opportunity of examining a large number of healthy young women; also to Mr. Roberts, who has kindly aided us by the examination of healthy young men in gynosiums. The results are as follows:

Pulsation felt in all four arteries	181	
Pulsation absent in both dorsalis pedis arteries	10	
Pulsation absent in one dorsalis pedis	4	
Pulsation absent in both posterior tibials	3	
Pulsation absent in one posterior tibial	1	
Pulsation absent in all four arteries	1	infant.
	200	

It should be noted that in the majority of healthy individuals in whom certain arteries were not felt, the other arteries were well developed and pulsated strongly, showing that we had to do with a physiological anomaly. It is common, on the contrary, in angina cruris and allied conditions, with pulseless arteries, to find the pulsation in other arteries feeble. In certain cases, again, we had to do with an artery neither wanting nor obliterated, but obscured by thickened tissues. Our results are less uniform in this connection than those of Erb and of Goldflam, but they serve none the less to indicate that the occurrence of painful cramps in combination with pulseless arteries is too striking to be a mere coincidence.

Those examined were generally questioned with regard to cramps, and it is noteworthy that the only individuals (two) giving a history of cramps at all severe, frequent or fixed in location were among those in whom the pulse was not to be felt in either dorsalis pedis artery, and in one of these persons the feet showed marked signs of impoverished circulation. These two cases might equally well have been included among those probably allied to angina cruris.

With regard to the prognosis and treatment of angina cruris, the prognosis resolves itself into an estimate of the competency of the vascular system in the extremities. In some of the severe cases the nutrition of the part will become seriously compromised, but in the large majority the outlook, according to Erb and others, is fairly good if the conditions are favorable.

Prophylaxis is of signal importance. Persons with tendency to arteriosclerosis should avoid violent, continued exercise, should avoid extremes of temperature, and if tendency to flatfoot exists this should of course receive skilled attention. If angina cruris is well developed the patient should be kept in bed for a certain period, and when he is allowed to walk should do so, as Erb expresses it, with the watch in the hand, endeavoring

always to keep within the amount of exercise which would produce a cramp. Strophanthus and nitro-glycerin should be tried. Iodide of potassium has been advised by all authorities and should, perhaps, be used, especially if there is reason to suspect syphilis. Bandaging the affected limb has appeared useful, and in one of the cases of modified angina reported in this paper (Observation II) the elastic stocking combined with avoidance of exercise seemed of value, since no attack occurred during the year of these precautions. Erb has recommended a galvanic foot-bath, the details of which may be found in his article. Riesman<sup>18</sup> recommends vegetable diet, avoidance of red meat, alcohol, tea and coffee, and of rich foods.

This investigation has impressed us with the importance of examining the dorsalis pedis and posterior tibial, as well as the radial and temporal arteries in all cases in which an impaired circulation may play a part in the pathological process, whether of the brain, spinal cord or other organs. It is well known that the finding of healthy arteries in one region does not preclude serious changes in the vessel walls elsewhere. In case symptoms point, for example, to vascular occlusion, or hemorrhage of the brain, we cannot assume that cerebral atheroma is present, because we find a rigid radial artery, nor can the converse be established. Our only recourse is to examine such arteries as are available for palpation, and to draw what inferences we may. It behooves us, then, in all doubtful cases, to include the pedal arteries in the examination. This is the more important, inasmuch as these arteries may well be the first to suffer, partly from their distal location, and partly from the mechanical disadvantages under which they labor. We select one from many instances showing the advantage of such examination:

**OBSERVATION XVII.** A lady of 61, seen in consultation with Dr. Phippen of Salem, has suffered from progressive paralysis of insidious onset, commencing in the right hand and gradually spreading during the past two months so that the entire arm is now helpless and the right leg partially so. There is no headache, no vomiting, no optic neuritis. The arteries at the wrist and temple present no notable variation from the normal, but no pulsation is felt in either posterior tibial, and none is felt in the left dorsalis pedis, though the pulsation is normal in the right dorsalis pedis. There is no history of painful cramps.

The examination of the pedal arteries was of material aid in establishing the diagnosis, already suggested by the clinical history, namely, progressive softening due to vascular occlusion. This case further shows that pulseless pedal arteries do not necessarily produce angina.

Though it leads us somewhat afield, we cannot resist alluding in this connection to the indications of spinal disease sometimes accompanying angina cruris. A review of the present pathological status of the so-called primary degenerative cord diseases shows that while the degeneration is recognized as peculiarly prone to attack those portions of the cord whose blood supply is

normally the feeblest (that is, the lateral and posterior columns), the exact part played by the circulation is not determined by those who have given the subject the most study (Marie,<sup>21</sup> Putnam<sup>22</sup> and Taylor,<sup>23</sup> Dana,<sup>24</sup> Russell, Batten and Collier,<sup>25</sup> and others). Even Marie, who lays special stress on the vascular origin of these degenerations, practically subscribes to the views of Ribbert, who assumes that some *irritant* must be present, thickening the vessel walls and producing diapedesis at the spots he regards as foci of inflammation. Mere local ischemia in these regions (regions whose blood supply is already naturally poor) seems nowhere accepted as sufficient cause for degeneration, though thickened arteries, collapsed arteries, arteries showing hyaline degeneration, and even signs of arterial obliteration, have appeared with more or less constancy in the pathological reports and though Osler states that the *cerebral* symptoms of arteriosclerosis embrace those of many degenerative processes, acute and chronic. If a *toxin* must be invoked for these changes, it seems remarkable that such toxin should invariably attack individuals from forty-five to sixty years of age, and sometimes more than one individual in a family, whereas this is just the age when the effects of a congenitally feeble circulation might be expected to become apparent, and the occurrence of the symptoms at this age in more than one member of a family could be explained, without stretch of imagination, by a family tendency to an inadequate circulatory system.

The following case suggests the possibility that some of the paroxysmal pains of the degenerative spinal diseases (for example, tabes) may be allied to angina cruris and have their origin at the periphery rather than in the spinal roots from which they are ordinarily supposed to be referred.

**OBSERVATION XVIII.** An American, 53 years old, gives a history of primary sore followed by eruption, twenty years ago. During the past year his disposition has changed, and his memory failed. He is now mentally incapacitated for his work. The speech is somewhat impaired, the pupils are unlike and the right fails to react to light. The gait is unsteady, and the ground feels unnatural to him, though no objective anesthesia is found. The knee jerks are exaggerated, without ankle clonus or Babinski reflex. There is painless enlargement of the right knee joint, with great increase of fluid.

The patient complains of frequent attacks, twenty or more daily, of paroxysmal pain in the calf, generally brought on by walking, of brief duration, and so intense that he cannot proceed till the spasm has passed. On the left foot no pulse is felt in either the *dorsalis pedis* or the posterior tibial artery; in the right foot pulsation is felt only in the *dorsalis pedis*. He complains also of sharp darting pains in various localities.

The diagnosis is obviously general paralysis, with characteristic spinal involvement, but the paroxysmal pains of which he chiefly complains conform much more readily to the type under discussion than to the type of pain ordinarily attributed to irritation of nerve roots resulting from disease of the spinal cord.

#### CONCLUSIONS.

(1) The concurrence of the paroxysmal pains of angina cruris with pulseless pedal arteries is

too constant to be explained by coincidence, though it is true that pulseless arteries may be found without the pains, and, conversely, that such pains may appear with apparently normal arteries.

(2) The painful paroxysms are probably of vascular origin, and result from vascular spasm coupled, perhaps, with increased blood pressure acting on vessels already partially occluded, whether from local or general disease (aneurism, syphilis), from senile changes (atheroma), or from congenital tendency to angiofibrosis.

(3) Recurring painful cramps of constant seat probably represent a modified form of angina cruris.

(4) It is important to examine the *dorsalis pedis* and posterior tibial, as well as the radial and temporal arteries, in all cases in which it is desirable to estimate the bearing of the vascular condition upon disease in the central nervous system or elsewhere.

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#### PHYSIOLOGICAL HEART MURMURS PRODUCED BY THE ELECTRIC-LIGHT BATH.

BY THOMAS HOWELL, M.D., WORCESTER, MASS.,  
Assistant Physician, Worcester Insane Asylum.

THE readiness with which murmurs, or something which answers for them, can be produced in the heart and blood vessels was strongly impressed upon me while engaged recently in conducting a series of experiments to ascertain the physiological effects of the electric bath upon the human system. These experiments demonstrated conclusively to me how little weight should be attached to the mere presence of a murmur in making a diagnosis of heart disease. In all, fifty-two persons were examined, with special reference to the effects of the bath on the heart, and murmurs were heard in the heart or arteries, gen-

erally both, in nearly every case. In some instances these murmurs were both short and soft, while in others they were rough and long. As a rule they were evanescent, but sometimes they persisted for twenty or thirty minutes, particularly in the vessels.

Of the persons examined twenty-nine of them were women and twenty-three were men; thirteen women and one man were insane, while the others were young women and men employed as nurses and attendants. In order to eliminate the personal element, I had Dr. E. V. Scribner examine a number of the patients with me, and his findings coincided with mine.

The outfit I used in making the experiments is an octagonal box, about five feet high and about four feet in diameter. In the corners are sixty-four incandescent lamps of sixteen candle-power each, arranged in four series of sixteen each, each series having a separate switch in order that the amount of heat and light may be carefully and accurately regulated. There are eight rows with eight lamps each, running from the top of the box to within about twelve inches of the bottom. It was found that the temperature in the cabinet ran up to about 160° F. in five or ten minutes—not an excessive degree when it is recalled that the Turkish bath varies from 200° to 300° F.

The patient sits on a stool with his head protruding through an aperture in the top of the cabinet, thus enabling him to breathe cool, fresh air, while the body is being subjected to the heat and light of the lamps. During the first four or five minutes in the bath the patient feels nothing more than an agreeable sensation of warmth. After about five minutes, he begins to perspire, and in a few minutes more this becomes profuse. The bodily temperature increases, and after ten or twelve minutes may be 100° or even 102° F. In the meantime, the pulse increases its rate, and in twelve minutes, or even less, may be 170 per minute. The patient is also aware that his heart is acting more forcibly than customary. Sometimes he feels alarmed, says he is getting dizzy, that there are noises in his ears, etc. Occasionally they have become frightened, and, saying they were going to faint, asked to be removed. Ordinarily, however, these subjective symptoms were not complained of. The bath was set up in a room, and across the hall was a dormitory where the patients were examined before and after treatment. As the cabinet was being opened to let them out they were requested to pass quickly to the dormitory and take recumbent positions. This was done in order that they might be auscultated while their hearts were yet beating rapidly and forcibly, and before the more transient murmurs had disappeared. While in the bath they wore no clothing, thus allowing the radiant heat to penetrate the tissues. It has been found that the skin and other bodily tissues readily permit the transmission of the radiant heat of the electric light. It enters the body as light, but, because of the resistance it encounters, is transformed into heat. Kellogg says: "This heat is developed in

the deeper tissues instead of being slowly carried in by conduction from the surface. The skin is, like glass, a poor conductor, but at the same time allows the passage of radiant energy in the form of light. This fact explains the readiness with which perspiration is induced by the electric-light bath." This also explains the rise of internal temperature, and probably the increased heart action is due, in part, to the same cause.

As previously noted, a majority of the persons treated were healthy young people between the ages of eighteen and twenty-five years. Of the insane patients, seven were under, and seven over, forty-eight years. The preliminary examination showed that five of the insane and three of the sane had what were probably organically diseased hearts. The large percentage of diseased hearts in the insane was due to the fact that a number of them were debilitated persons, and were taking the baths as a part of treatment. Of the employees, six had functional murmurs. No functional murmurs were heard in the insane before entering the bath. In the cases of organic heart disease the murmurs were made more pronounced by the bath, but in no instance were any untoward results noticed. One woman, with a to-and-fro murmur in the aortic area, remained in bed for half a day after the bath, saying she felt more comfortable there. As would be expected, however, a feeling of lassitude ordinarily existed for an hour or two after treatment. The functional murmurs present before the bath were likewise intensified, in several instances startlingly so. The examinations were made while the patients were recumbent. When standing or sitting, the murmurs were, as a usual thing, not as distinct, and sometimes could not be heard. I tried to auscult the patients while in the box, by means of a phonendoscope fitted with long tubes, but the results were unsatisfactory. The murmurs heard were generally at the base, frequently most distinctly in the aortic area, and they were well conducted into the arteries.

Bruits of this nature are best heard, as a rule, during suspended respiration, generally at the end of expiration, and these proved no exceptions. They were heard not only in the aortic and pulmonic areas, but at times in the other valve areas. As my attention was directed first to the base of the heart, the mitral and tricuspid valves were slighted, for very frequently by the time I had satisfied myself as to the condition at the base and in the arteries, the excessive heart action had subsided, and the apex murmurs had become faint or had disappeared entirely. In nearly every case, bruits were heard over the arteries, either the subclavians or carotids, generally both, and in several instances over distant arteries, the brachial being the one I listened to oftenest, and, consequently, the one where I heard the most murmurs. These arterial murmurs persisted in many cases for over thirty minutes, but those over the heart had disappeared after five or ten minutes, at which time the pulse had become nearly normal in rate. The heart would continue

to act more forcibly than customary, and the arteries to visibly pulsate, even after the normal pulse rate had been reached. In listening over the arteries I was careful not to use undue pressure, and thereby produce an abnormal sound.

Of the twenty-two men examined (they were carefully selected) only one had an organic murmur. Only one functional murmur was found, prior to the bath, and this was in a rather nervous but otherwise healthy man. Of the twenty-two there was only one in whom a murmur was not produced by the bath. This man was one of the oldest—thirty-four years. On entering the bath, his pulse was seventy-six, and at the end of thirteen minutes it had reached 125, which was less than the average. Three minutes after leaving the bath, and while he was recumbent, his pulse had dropped to 80. This man did not exhibit any nervousness, and it was noticeable at the preliminary examination that his heart sounds were not heard so distinctly as were those of the others.

Of twenty-nine females, seven had organic heart disease, and five had functional murmurs. In only one did I fail to hear a murmur after the bath. This woman is thirty years of age, appears frail, and occasionally has asthma and other nervous disturbances. Her weight is but 90 lbs. Notwithstanding her apparent frailty, she was the champion bicycle rider both in making long runs and in climbing hills, and this would indicate that her heart is a serviceable one. The duration of the bath in this case was only seven minutes, owing to a feeling of faintness. It seems probable that had she been able to remain in the usual length of time, murmurs would have been produced. On entering her pulse was 90, and at the end of five minutes it had reached 132, but her heart action was not forcible.

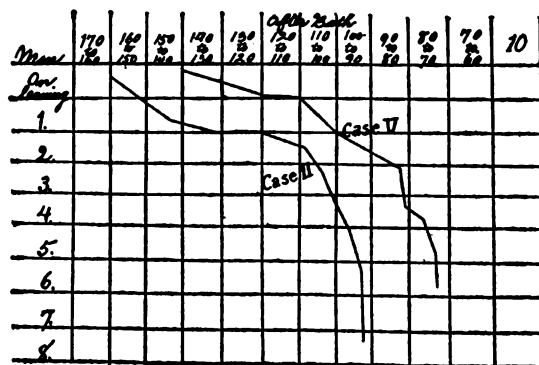
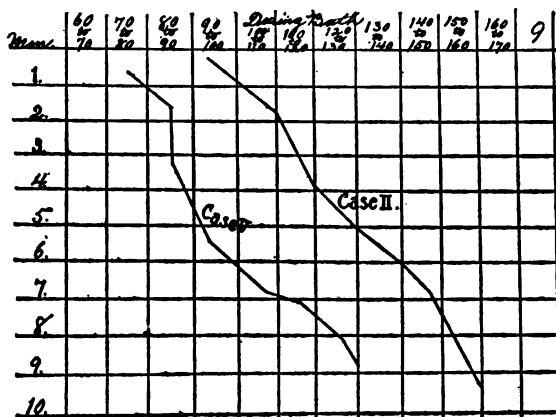
The following charts illustrate the conduct of the pulse before and after the bath, two typical cases having been chosen.

The effects produced on the heart and the arteries by the bath reminded me of those following the inhalation of amyl nitrite, that is, rapid heart action and relaxed arteries. The arterial tension was ordinarily considerably reduced, and pulsations were frequently seen in both large and small arteries. The following five are typical cases, all being healthy and free from any evidence of cardiac disease.

**CASE I.** Miss P., age 28. On entering the cabinet her pulse was 80, increasing rapidly, until, at the end of ten minutes, it had reached 130. On leaving the bath, murmurs were heard extensively over the heart and in the arteries. Two minutes afterwards, her pulse was 84, her heart was still beating forcibly, and the murmurs were still present. Three minutes later, and five minutes after leaving the bath, her pulse was 76, her heart was acting less forcibly, and the only murmurs heard were those in the arteries and a slight one at the apex. This woman was examined subsequently, when no bath had been taken, and no murmurs were heard.

**CASE II.** Miss H., a particularly rugged woman of 23 years. Entered the cabinet with a pulse of 76, and at the end of ten minutes it had reached 126. She was then removed and a loud systolic murmur was heard at the base of the heart. Murmurs were also heard in the arteries. Two minutes afterward her pulse had dropped to 76, and the murmurs were still heard. At the end of ten minutes the cardiac murmur had disappeared, but the arterial were still present. I have examined this woman's heart repeatedly, both before and since the bath, but at no other time have I ever heard any murmurs.

**CASE III.** Mr. N., age 24. Pulse on entering bath, 68; on leaving, ten minutes later, 112. The heart murmur produced in this instance was extremely soft and at the base. The arterial



murmurs were loud and could be heard in such arteries as the brachials.

**CASE IV.** Mr. M., age 20. On entering, his pulse was 88. When he had been in the bath two minutes his pulse was 120, and at the end of 12 minutes it was 170. The fact that his heart action rapidly increased after entering the bath and before any systemic effects could have been produced, is attributable to but one thing—excitement. The usual murmurs were heard in this case. At the end of two minutes after leaving the box, his pulse had dropped to 115.

**CASE V.** Miss M., robust woman, age 27. Pulse on entering, 74; on leaving, at the end of nine minutes, 130. After the bath, murmurs were



heard in the arteries and extensively over the heart. The murmur at the apex was quite distinct, and was conducted into the axilla. At the end of six minutes no murmurs could be heard, with the exception of very faint ones over the arteries.

Functional heart murmurs have received much attention. Dr. Morton Prince, in examining candidates for the Boston Fire Department, found many transient mitral murmurs in healthy young men, and he regarded them as the result of excitement, the men being naturally extremely anxious to pass a creditable physical examination. Out of seventy-seven presumably healthy men examined by him, twenty-six presented a systolic murmur with all the characteristics of a mitral regurgitant murmur. McCollom, examining for the Boston Police Department, found twenty-seven mitral regurgitant murmurs in 200 presumably healthy men. Munro for some time had his surgical cases examined before and after operating. He found that in a fair proportion of cases murmurs were found before the operation, and these would disappear after, or if for some cause the operation was postponed for the time being. These functional murmurs were heard at the apex and base, with an accentuated pulmonic second sound. Williams and Arnold found bruits of mitral origin in their examinations of the Marathon runners, and ascribed them partly to a relaxation of the circular muscular fibres surrounding the orifice and partly to fatigue of the papillary muscles. Darling, in studying the effects of training on the Harvard University crews, obtained similar results.

According to the 1897 annual report of the surgeon-general of the army, the report of a medical examining board, convened at West Point in 1894, indicated that a considerable number of cadets had become afflicted with heart disease while at the Military Academy, and the usual character of the disease was reported to be aortic obstruction. These men were found to be "physically disqualified," but were allowed to remain at the academy on probation for six months. A careful investigation was made in each case. The findings of the investigating board, after observing these cases for a considerable time, some of them for three years, was that "The murmur heard in each individual at the time of the examination of these cadets was due to a temporary irritability of the heart, caused by the nervous excitement attending the ordeal of examination."

These observations tend to show that murmurs may be produced in apparently healthy persons by mental excitement and by vigorous muscular exercise. In the cases examined by me it would not seem that there was excessive mental perturbation, at least not in all the cases, and certainly there was no unusual muscular effort, yet in nearly every case murmurs were distinctly heard. I would have experimented with cases of advanced dementia, where there is little capability of responding to external stimuli, and where the factor of mental excitement could have been prac-

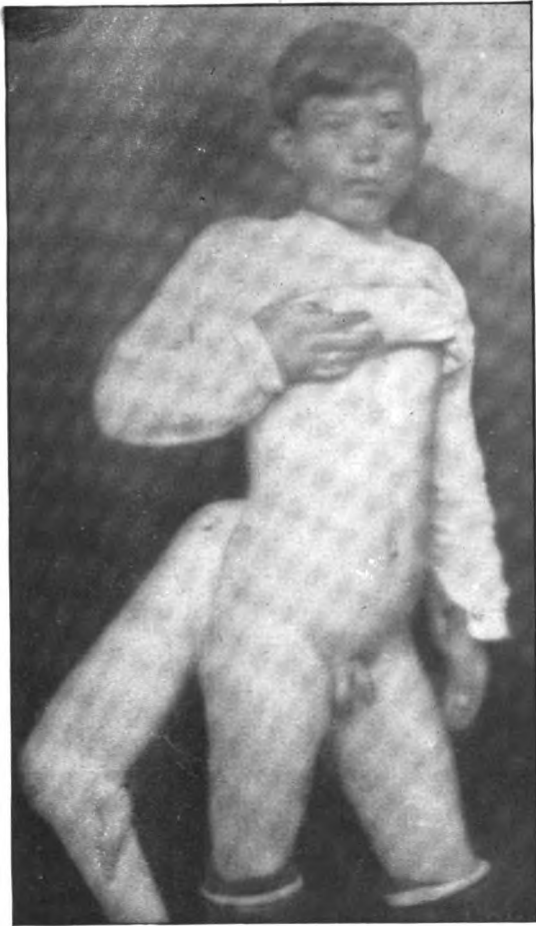
tically eliminated, at least after their first treatment, but our cabinet is so constructed that cases of this character cannot be safely treated, owing to the likelihood of injuring themselves. As it was, selecting the most easily managed insane patients, all of whom were somewhat demented, though none deeply so, the effects, on the whole, were nearly similar to those produced in the sane persons. The pulse rate of the insane, however, did not, as a rule, run so high as in the sane, and the murmurs did not seem so loud and clearly defined. This may have been due to the fact that as a rule they were somewhat debilitated, and their hearts were not capable of responding so vigorously as were those of the healthy young people. When I began to pay particular attention to the heart in the sane cases, I thought that probably when these same people came to take their second or third baths the mental excitement, whatever it might be, would have worn off and the effects on their hearts would not be so pronounced. However, I could not see that the murmurs were any less distinct or the heart acting any less rapidly or forcibly than after their first experience. Possibly, if a dozen or more baths had been given to individuals, the results might have been different, but the patience of the ordinary mortal is limited, particularly when he is being used for experimental purposes of which he knows little and cares less.

It has been long recognized that many heart and arterial bruits are not organic, and many explanations have been offered. My observations and the series of experiments made with the electric bath have led me to believe that anything which will cause the heart to act rapidly and forcibly, especially where the arterial tension is reduced, will frequently produce these murmurs. In conversation with a medical friend, connected with a large receiving hospital for the insane, I asked, "What per cent of your admission cases have valvular heart disease?" He replied: "The number is large; I should think over 60%." I do not question but that he heard murmurs in a large percentage of his cases, but I do question his diagnosis of valvular disease, and I believe that had he examined his cases carefully after they had gotten over the excitement of admission, and their vascular systems had had time to regain their tone, he would have found that many of these murmurs would have disappeared. Murmurs heard at the time of admission have, under my observation, disappeared, the patient never evidencing any symptoms of heart disease, and the autopsy revealing no evidence of valve defect.

Laennec attributed cardio-arterial murmurs either to an organic or vital condition of the artery—a sort of spasm or tension. Sansom offers practically the same explanation, namely, that, under nervous (vasomotor) disturbance, the arteries may be unequally affected in their calibre, some lengths being contracted, others dilated or of normal size; so that the blood passes from narrower to wider channels. I have noth-



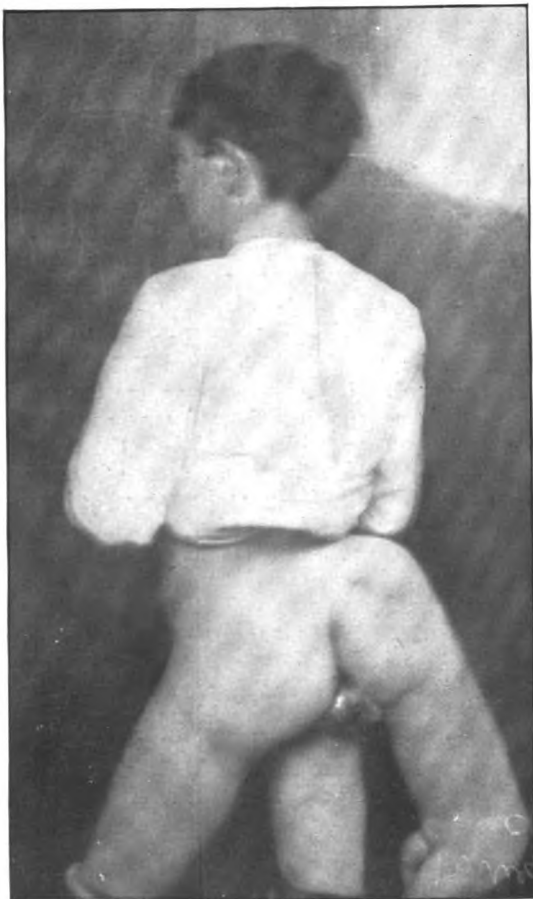
**A CONGENITAL MALFORMATION.**



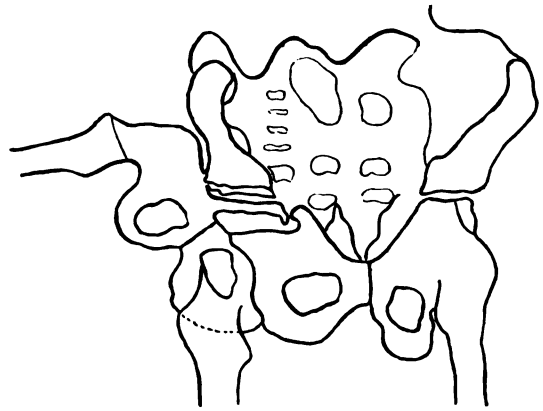
**Front.**



**Third leg (showing appendage).**



**Back.**



**Tracing of skiagraph of pelvis.**



**Third foot.**

ing additional to offer in explanation of the arterial murmurs produced by the electric-light bath.

As indicated above, the functional mitral murmurs have been explained, and probably correctly, as due to a temporary relaxation of the mitral sphincter, or of the papillary muscles, thus producing an actual but transient mitral regurgitation. The same causes would not be operative at the aortic valve. Providing the anatomy of the aortic valve was such that temporary relaxation might take place, the murmurs would be diastolic and not systolic, as were the murmurs of which I am speaking.

Does dilatation of the aorta assist in the productions of these abnormal sounds? Allbutt, in his "System of Practice," states that he has never heard a murmur in the aortic area accompanying dilatation of the aorta, which could not be accounted for by the condition of the valves. This is probably true of organic murmurs, but it does not necessarily follow that functional ones may not be generated in this way under unusual conditions. If murmurs can be produced in distant arteries, such as the brachial, it looks probable that they may arise in the nearby ones. As to the ability of the aorta to dilate, Cherchevsky states that in normal conditions its diameter varies at different times. He found that tapping with a percussion hammer over the region of the arch caused it to dilate, while tapping in the epigastric region caused it to shrink. The electric-light bath certainly produces a condition of relaxation of the smaller arteries, and probably the larger ones are likewise affected. The murmurs heard by me were frequently louder over the carotids and subclavians than over the heart itself, showing that they were either generated or intensified in the arteries.

Given a condition of a temporarily dilated aorta, a vigorously acting heart rapidly forcing the blood through a now relatively narrow aortic orifice, and it seems reasonable to suppose that vortices should form as the blood enters the artery, and that they in turn should produce the sounds we term murmurs.

#### A CONGENITAL MALFORMATION.

BY SEABURY W. ALLEN, M.D., BOSTON.

THE subject of these pictures was found in a cheap museum last spring. He was a Sicilian of fourteen years, the oldest of several normal children, and had always been in good health. Close questioning into his family history failed to discover any disease whatever. The incompleteness of the photographs is due to the fact that only a few minutes were obtainable in which to take them, as the boy was leaving the city the same afternoon as when he came to the Boston Dispensary.

The two legs used in walking or standing were perfectly formed, while the third leg, coming off

the side and back of the pelvis, was also normal except for the appendage shown in the pictures, a slight atrophy (from disuse) of the calf muscles, and a little bending downward of the femur, from the weight of the lower leg. The third leg was under perfect control, having about 30° of motion at the hip joint. Although in walking, the foot belonging to this leg was carried off the ground, it could be brought backward and downward, so that with all three knees bent it could be used to support the trunk—the position of rest in this manner reminding one of a three-legged stool. The appendage of the third leg was connected with the femur by cartilage apparently, and contained what seemed to be a well-formed metatarsal bone and three phalanges. This was not under control although quite movable. As may be seen in the skiagraph the third foot was normal.

In front there was the usual set of genitalia, urine being passed in the ordinary manner; while behind, between the middle and third legs, there was a well-developed penis with a nonpatulous urethra, also two full-sized descended testicles and a cleft scrotum, the cleft running up and back for two inches and a half, and having the appearance and feel of a multiparous vagina. This cleft was separated from a normal sphincter ani, which in turn was separated from the anterior scrotum by the usual perineal raphe. Therefore, it seems probable that the anus belonged to the anterior genitalia, and that the cleft, which leaked urine continuously (the amount not being altered by the voiding of urine from the anterior urethra), was a large vesical fistula, leading to a second bladder. In other respects the figure was normal.

Owing to the leaking of urine (requiring the reversing of the x-ray plate) and the backward direction of the third leg (so preventing a close approximation of the plate to the pelvis), the skiagraph of this region was not very successful, therefore only a tracing of the negative is printed.

The third leg could doubtless have been amputated at the hip joint without difficulty, but at this suggestion the boy's companions were somewhat disturbed, pertinently asking how, if that were done, they could all make a living.

#### Clinical Department.

##### POISONING FROM THE APPLICATION OF CARBOLIC ACID TO THE UNBROKEN SKIN.

BY J. W. WAINWRIGHT, M.D., NEW YORK.

A VERY interesting case of carbolic acid poisoning came to the notice of the writer a few weeks since, which he desires to briefly report as follows:

The patient, a gentleman of 50 years of age, very vigorous, weight 225 lbs., applied quite freely of a 4% solution of Calvert's carbolic acid, in water immediately following a hot bath, for the relief of pruritis. He had been using a 2% solution, but at the suggestion of his druggist, this

was increased to 4%. This solution gave temporary relief through its anesthetic effect, with no ill results following previous to this rather more free application than usual.

The bath was finished about 12 o'clock midnight; solution applied at once over the abdomen, pubis, thighs and the lumbar region, with the usual relief. While dressing at 7.30 the next morning a peculiar pain was suddenly noticed, apparently in the bladder. This was quickly followed by greater pain extending through the abdomen. The pain increased so rapidly that the gentleman could not finish his toilet, but was compelled to send servant for a nearby physician, who responded at once. The suffering was so intense that a hypodermic of morphin,  $\frac{1}{4}$  gr., was administered. This, however, had seemingly no effect in controlling the pain, and as the patient was in the most intense agony another  $\frac{1}{4}$  gr. of morphin was injected in half an hour. In the meantime an effort was made to discover a cause for the trouble, but the patient could suggest none. There were frequent chills of a few minutes duration each; a profuse cold, clammy perspiration, vertigo, vomiting and a desire to evacuate the bowels. The eyes were very prominent and fixed, while the writhing indicated great suffering. Hot water was applied, with chafing of the limbs, and a hypodermic of apomorphia given to assist in unloading the stomach of what might possibly have remained. At the end of an hour and a half another hypodermic of morphin,  $\frac{1}{4}$  gr., was given. Vertigo increased with an appreciable paralysis of the lower extremities and complete cessation of the functions of the stomach, bowels and kidneys, no urine being secreted for eighteen hours, slight at first, gradually increased after a hot bath followed by the free application of alcohol externally by friction and compresses. Appendicitis, renal calculus and ptomain poisoning suggested themselves.

At 12 o'clock noon, or four and one-half hours after the attack began, the patient became drowsy, and would doze for a few minutes at a time to be awakened by the recurring lancinating pains. Food and drink were declined. Enemas of hot water were thrown high up into the intestines and retained; no movement of the bowels followed. The pulse was frequent and at times barely perceptible. Skin moist and cold; collapse was feared, and hot applications freely used. Relief from pain began some four hours after the attack, and with decreasing remittance gradually grew less, until at midnight the patient was comparatively comfortable.

An examination of the urine disclosed the characteristic smoky appearance of urine containing carbolic acid, while test showed an abundance of albumin. The appearance of the urine led to the discovery that the patient had applied carbolic acid solution as described, when the diagnosis was easily made.

There was great depression for three days, with evidences of highly inflamed kidneys; the left kidney felt as if it had become loosened from its

fastening and was floating. When walking this kidney felt heavy and seemed to move with each step taken.

In ten days the patient was entirely recovered and has experienced no difficulty since. The carbolic acid was evidently absorbed more readily because of the ideal conditions following the hot bath.

#### A CASE OF DERMATITIS MEDICAMENTOSA.

BY WILLIAM H. ROBEY, JR., M.D., BOSTON.

THE following case occurred in the service of Dr. George B. Shattuck at the Boston City Hospital:

F. B., 34 years of age; single, a waiter. Entered Oct. 24. Family history unimportant. Past history: Habits fairly good. Denied syphilis. Had an eczema when a boy and an eruption all over the body with loss of hair twelve years ago, similar to one which he had when in the Boston City Hospital in 1888. He was admitted at that time, having had chills seven days before, followed by fever and dry cough; throat dry and parched. No headache, no pain anywhere, no nausea, no vomiting. Temperature 102°, pulse 75, respirations 34. In a few hours after entrance the skin became covered with a scarlet blush, while on the backs of hands and thighs and abdomen many small vesicles appeared, some of them ruptured and some contained puriform matter. The erythematous blush disappeared on pressure. Three days later desquamation began. The diagnosis at the time was "scarlet fever and universal eczema." No history of any medication prior to entrance.

*Present history.*—Had not been out of the central portion of the city for four months. On Oct. 7 began to have chills every other day followed by fever and sweating.

The physical examination practically negative; spleen not made out.

Oct. 25: Blood examination showed simple tertian malarial infection. Urine negative. Oct. 26: Had a chill at 6.30 A.M. The temperature began to fall between 8.30 and 9 A.M., and 15 gr. of quinia were given. About noon the face and hands became quite erythematous. At 6 P.M. the trunk was red; no eruption made out. Oct. 28. The redness had largely disappeared from the trunk and extremities. Oct. 29: Had a rise of temperature at 1 P.M., but did not have any distinctive chill; was given 15 gr. of quinia at 6.30 P.M. and at 11.30 P.M. had a regular chill followed by fever. Oct. 30: In afternoon an erythematous blush began to appear on face and hands; the skin itched and burned, and there was slight ringing in the ears. No plasmodia found. Oct. 31: Leucocytes, 14,600.

Nov. 1: Face and ears covered with desquamation.

Diagnosis of dermatitis medicamentosa, confirmed by Dr. G. F. Harding. Examination of throat negative. Temperature normal.

Nov. 9: Leucocytes, 14,050. Nov. 14: Leucocytes, 11,200. Nov. 17: Desquamation almost complete. Enormous scales on the soles of both feet. General health excellent.

Nov. 20: At 7 A.M. 2 gr. of quinia given. At 10.30 A.M. a slight erythematous blush was seen on face, neck and hands, and at 11 A.M. the patient began to itch and feel uncomfortable. By 12.30 the whole body was covered with an erythematous eruption which faded on slight pressure, that on the penis and scrotum not being as intense as on trunk. The skin felt dry and hot, and the patient was so uncomfortable that at 1 o'clock he went to bed. He said he burned and itched so that he would like to tear his clothes off. At 1.50 P.M. he began to have a chill which lasted about an hour; no malarial organisms found. At 3 P.M. the skin on the back had a fine papular eruption; the color of the whole body was a brilliant scarlet. At 4 P.M. leucocytes, 14,500. At 10.30 P.M. the scarlet tint began to disappear from the face and hands. Nov. 21: Scarlet color fading. Examination of throat showed same erythematous blush as skin. Patient described the sensation in the skin as feeling as if he had been immersed in a vat of boiling water. Nov. 24: Desquamation very extensive, enormous scales falling from all parts of the body. Leucocytes, 9,400.

Discharged well Dec. 9.

### THE SIGN OF "KOPLIC" IN THE DIAGNOSIS OF MEASLES.

BY ENRICO CASTELLI, B.A., B.SC., M.D., L.M. OF DUBLIN, WASHINGTON, D. C.

I DESIRE to call attention to the importance of a special sign that "Koplic," in 1896, described as a premonitory symptom of measles. As is well known, it consists of the presence of grayish-blue patches surrounded by a pinkish-red ring that appear in the mucosæ of the cheeks of people in whom measles will develop within a few days. Such a sign is very useful in the early diagnosis of the disease, especially in adults, where measles is so rarely suspected and where the premonitory symptoms of the disease assume, very often, a more serious aspect than in children. The sudden rise of temperature and of pulse, the conditions of the heart, the appearance of stupor and the presence very often of epistaxis and vomiting make us sometimes think seriously of the possibility of some other infection. I had a case lately in which the intense rachialgia, epistaxis and vomiting made me suspect an infection of smallpox. My suspicion was strengthened by the fact that the patient had just arrived from a place in which smallpox was raging.

Koplic, in the observation of many cases of measles, was able to detect frequently the signs spoken of above; from two to four days before the eruption came out.

In six cases which I have lately seen, two in adults and four in children, I observed the sign of

Koplic in one case four days before the eruption, in two cases three days, and in three cases two days before. In the case suspected as smallpox the sign manifested itself three days before the eruption. I used for the examination a frontal mirror and a side light.

## Medical Progress.

### REPORT ON MENTAL DISEASES.

BY HENRY R. STEDMAN, M.D., BROOKLINE, MASS.

#### CEREBELLAR CHANGES IN GENERAL PARALYSIS.

RÆCKE<sup>1</sup> has studied the changes in the cerebellum in fifteen cases of general paralysis. In all cases he finds an increase of Bergmann's fibres in the molecular zone. This usually occurs in small areas, but in some places it may reach such a degree as to change the molecular layer into one single mass of fibres. The changes in the granular layer are limited to a greater or less disappearance of the granules; the nervous elements disappear and are replaced by glia tissue. The process may finally become so great that the tissue becomes a thick mass of fibres containing the remains of a few granules. The changes in the white substance are, as a rule, much less pronounced than those in the cortex and occur chiefly about the vessels. In general paralysis the molecular zone is chiefly affected, then areas of the granular zone, and last and not least the medullary layer. We must, therefore, assume that the dendrites of Purkinje's cells in the molecular zone are injured in general paralysis, since every increase of the connective tissue must mean a certain loss of nervous elements. The process extends from the periphery inwards, and is more marked in the neighborhood of the vessels. The symptoms of ataxia and inco-ordination in paralysis may be due to these changes in the cerebellum, but the changes in the reflexes could not be brought into any relation with the cerebellar changes.

#### ALCOHOLISM AS A CAUSE OF GENERAL PARALYSIS.

In 102 cases of general paralysis observed at Brescia by Seppilli<sup>2</sup> from 1894 to 1900, alcoholism was the sole and exclusive cause of the disease in sixteen. There was no substantial difference in the symptomatology of these cases from that of the ordinary cases. Six cases were of the exalted type, with delusions of grandeur followed by dementia, one of the depressive type, with hypochondriacal ideas, and the rest showed progressive mental enfeeblement. The disturbances of speech had the same characteristics as in the other cases. Diffuse tremor was comparatively rare, and tremor was usually limited to the muscles of the face and tongue. Changes in the pupils were equally common. The course was in all fatally progressive, without remissions, and

<sup>1</sup> Arch. f. Psychol., May, 1901, xxxiv, 523.

<sup>2</sup> Ann. d. Neurol., 1901, xix, 80.



lasting from two to five years. Out of twelve fatal cases five died of marasmus, four of apoplectic attacks, one from uremia, and two from pulmonary affections. In the ten autopsies which were made no changes could be found differing from those of ordinary general paralysis. The chief alterations were thickening and opacity of the meninges, adhesions between the meninges and the cortex, granulations of the ependyma, and atrophy of the brain. Seppilli admits that there are also cases which are manifested by mental enfeeblement and confusion, tremor of the lips and hands, and disturbances of speech, which are similar to the cases of general paralysis, yet which may disappear after complete abstinence from alcohol. General paralysis is an affection which may be the product of different causes, which may either act singly or be associated, giving rise to a general intoxication of the organism.

#### GENERAL PARALYSIS, SYPHILIS AND MERCURIALIZATION.

Stoddart,<sup>3</sup> in a critical digest on general paralysis and syphilis, concludes that syphilis is so frequent an antecedent of general paralysis, that the nonsyphilitic cases (if such exist) may for the present be regarded as a negligible quantity. At least, we may say for practical purposes that hardly anybody runs the risk of getting general paralysis who has not had syphilis. But the question still remains to be answered, whether general paralysis is due to syphilis *per se*, or to the subsequent mercurialization of the patient which occurs in civilized communities.

#### CONDITION OF THE BLOOD IN THE INSANE.

Mackie,<sup>4</sup> in 100 examinations, states that in looking through the grand averages one cannot help being struck by the slight departure from normal which exists in the blood of insane patients. Though in some cases slight changes are noted with some degree of constancy, yet they are so insignificant that they do not appear to throw any light on the pathology, or give any indication for treatment in any class of cases. When they do occur, there is good reason to suppose that the alteration in the blood state is quite secondary to the mental change; and further, the examination of the blood in the present state of our knowledge is not even an aid to prognosis or diagnosis, as it is in so many diseases.

#### THE CEREBRAL LOCALIZATION OF MELANCHOLIA.

Hollander's<sup>5</sup> investigations have convinced him that a certain relation exists between the central area of the parietal lobe, namely, the angular and supramarginal gyri, and melancholic states of mind.

(1) This is shown by over fifty cases of injury to the parietal tuberosity of its neighborhood,

which were severe enough to affect the brain or its membranes, and from the fact that half of these cases recovered under surgical operation.

(2) This is shown by the mental symptoms accompanying tumors growing in and limited to this area.

(3) Furthermore, by the effects of inflammatory disease limited to this region.

(4) This is shown by the idiopathic hemorrhage sometimes occurring under the parietal protuberance (subsequently forming false membranes or cysts) after sudden fright, severe mental shock or other depressing emotional disturbance, or in mental diseases ushered in by an attack of melancholia.

(5) It is demonstrated that the symmetrical atrophy frequently observed to take place in the parietal protuberances, is due to a trophic change accompanying a melancholic state of the patient.

(6) Cranial disease affecting this brain area, and congenital and abnormal development thereof, may also originate melancholia.

It is argued that simple melancholia has as its basis a morbid condition of the emotion of fear. This emotion, though all-pervading, must take its start in a limited portion of the brain, which area, when fear is manifested morbidly, as in the different degrees of melancholia, must betoken some lesion. Experimental and anatomical evidence is adduced showing that:

(1) The physical expression of fear and its related states can be produced in animals by the excitation of the central parietal area.

(2) That this same area has a close connection with the sympathetic nervous system and the vasomotor nerves, which are both affected in melancholia.

(3) That in the lesions of this area rise of blood-pressure, alterations of sensibility, disturbances of vision, and cortical blindness may accompany the melancholic state.

#### THE PSYCHOSES OF PUBERTY.

Dr. Jules Voisin<sup>6</sup> of Paris includes under this heading all mental diseases making their appearance during the period of puberty, from twelve to twenty-two, that period being characterized by sexual maturity and physical and intellectual development. All varieties of psychoses may occur, for hebephrenia does not exist as a morbid entity, this term being reserved for cases of dementia. The mental states which appear at the beginning of puberty are not so serious as those occurring towards the end of that period. The first might be called the psychoses of puberty, and the second psychoses of adolescence. Hereditary predisposition seems to be the predominating cause, and this, with incomplete intellectual development, gives the hebephrenic stamp to the disease.

Melancholia frequently assumes the aspect of stupor, with impulsiveness, obsessions, and imperative hallucinations directed against the patient himself or the people surrounding him. Mania rarely presents mild features.

<sup>3</sup> Journal Mental Science, July, 1901, xlviii, 198.

<sup>4</sup> Loc. cit., January, 1901, xlvii, 146.

<sup>5</sup> Loc. cit., July, 1901, xlvii, 198.

<sup>6</sup> Proceedings of International Medical Congress at Paris, Lecture of Psychiatry.

Dementia occurring early in the period (hebephrenia), described by Kahlbaum and Hecker, has two forms, the severer one presenting symptoms of stupor, dementia, catatonia, and mental confusion (diagnosis often difficult), the milder one being a simple dementia, having to be distinguished from general paralysis, and the dementia of epilepsy. The mental confusion is of a dreamy or visionary type, and presents a great analogy to that associated with alcoholism.

Visionary mania characterizes all the psychoses of auto-intoxication, the nutritional disorder associated with adolescence apparently being the cause. In juvenile general paralysis, ideas of grandeur do not occur, and its course is slower than in the adult form.

Degenerative and neuropsychoses are the most common forms of alienation associated with puberty, and they generally recur in adult life.

#### POST-INFECTIOUS AND TOXIC PSYCHOSES.

Binswanger and Berger<sup>7</sup> have studied the acute and subacute psychoses which can be regarded as of toxic or infectious origin. The pathological distinction between these psychoses and those from exhaustion is exceedingly difficult, as both noxious agents act in a similar fashion upon the nerve substance. In all the cases disturbances of the processes of nutrition of the nerve substance are the chief factors in producing the morbid symptoms. In the psychoses which recover without defect the reparable processes of chromatolysis may be regarded as the pathological basis of the affection, unless we wish to assume merely functional changes, but the degeneration of the achromatic substance is regarded by Binswanger and Berger as of far greater importance. The destruction of the fibrillary substance of the ganglion cells leads to severe disturbance of function. This is regarded as an irreparable process, and it may be considered as the pathological basis of the psychoses which end with permanent defect. The process is, however, not actually so schematic, since the nerve fibres, the blood vessels, and the glia cells are also involved. With the fine organization of the nerve cells definite physiological irritations may, in conditions of exhaustion, cause slight alterations of nutrition, and these may lead to extensive disturbances of functions if the irritation be long continued and affect extensive areas of the brain cortex. These disturbances of the nerve substance are at first and in the milder cases slight, and if the nutritive processes improve, there may be complete recovery. In a second group of cases there is only relative recovery with more or less permanent defect. This may result either from slight changes in the nerve substance in a defective brain, or more marked disturbances in a healthy brain. The severest type of the post-infectious and toxic psychoses is acute delirium, which Binswanger and Berger regard as a very characteristic clinical syndrome for which we cannot assume any single etiological basis. Even the pathological findings are not

harmonious. They hold that in the development of this condition the individual resistance of the patient to the noxious agents is of decided significance. Although many authorities have found various bacteria in the brain in these cases, the disease is probably not due to any one definite bacterium, nor even to a localization of the infectious process in the brain as the place of least resistance, but the symptoms may be incited by the general infection of the whole body. It is probable, moreover, that acute delirium may be excited by purely toxic processes apart from any infection.

#### INDUCED INSANITY.

Meyer<sup>8</sup> maintains that, in order to regard a case as one of induced insanity, the mental disturbance of the first patient must actually be the specific cause of the affection in the second, and that the second affection must present the same clinical picture as the first, and that after the second patient has been separated from the first he shall preserve the same symptoms, and develop them in typical fashion. As a rule induced insanity takes the form of paranoia, and in two cases occurring in husband and wife which the author reports, the paranoia was of the litigation type. The development of other forms of psychosis under such conditions the author does not believe to take place. Heredity seems to play only a slight part, but consanguinity is of greater importance. In one of his cases the mental inferiority of the second individual was marked, but in all cases the similarity of the character before the disease, the harmony of psychological characteristics, and the intimate relations of their inner life were regarded as favoring factors.

#### MYXEDEMATOUS INSANITY AND THYROID TREATMENT OF INSANITY.

Pilcz<sup>9</sup> studies the mental conditions of myxedema and finds that the mental disturbances are by no means uniform, all forms of functional psychosis occurring in this condition: mania, melancholia, delusions of grandeur, delusions of hallucinations, etc. He reviews also the cases of insanity not due to myxedema which were treated by thyroid preparations, and he considers that the alleged recoveries are not due to the treatment itself, but that the mental disease itself was one susceptible of recovery independent of the treatment. Of 688 cases collected, chiefly English and American, 110 recovered, 165 improved, 348 were unaffected, 13 grew worse and 2 died.

#### CIRCULAR INSANITY.

Schieber<sup>10</sup> divides circular insanity into three forms: First, the double form, where the phases are melancholia, mania, lucid interval; second, the true circular type, where the phases are melancholia, interval, mania, interval, melancholia,

<sup>7</sup> Arch. f. Psychi., February, 1901, xxiv, 181.

<sup>8</sup> Jahrb. f. Psychi., 1901, xx, 77.

<sup>10</sup> Arch. f. Psychi., February, 1901, xxiv, 225.

<sup>1</sup> Arch. f. Psychi., February, 1901, xxiv, 107.

interval, etc.; and, finally, the alternating type, where the interval fails and the depressed and exalted phases alternate. The latter form is the severest and the rarest. Many writers, however, claim that in the so-called lucid interval there is not a complete recovery, but always a certain degree of mental disturbance. The duration of the different phases may vary from one to several days, weeks, months, or even years. He reports the case of a man of sixty-three, a physician who, at the age of fifty-seven, had an attack of vertigo without loss of consciousness, after which he became very irritable. A year later he had a second attack of greater severity followed by repeated slight attacks. After this he began to exhibit daily alterations of his emotional state, being one day exalted, and the next depressed. Two years later he had a third severe attack of vertigo, followed in about a month by a fourth, which resulted in complete hemiplegia. In the absence of any heredity or special nervous taint, the circular insanity in this case was regarded as the result of the second apoplectic seizure. In conclusion Schieber reviews the alleged cases of circular neurasthenia, and fails to find in neurasthenia any condition to explain the exalted mental state and the feeling of well-being observed in the so-called circular cases. These cases, therefore, should be regarded as extremely mild cases of circular insanity.

#### ACUTE MENTAL DISTURBANCES.

Sander<sup>11</sup> has made a study of the pathological changes in various acute mental disturbances. These are chiefly cases of acute delirium, which he regards as a group of symptoms having no single etiological or anatomical basis. A large number of the acute mental disturbances which end fatally and which were formerly regarded as acute delirium are cases of general paralysis, or, more rarely, of senile mental disturbance; but in these cases, beside the more or less pronounced acute disease, we always find the characteristic chronic changes, especially in general paralysis. Periodical psychoses sometimes run their course under the form of acute delirium, as in two of fourteen cases observed by him at Frankfort. Sander has made a comparative study of the brain in the cases of various infections in which, during life, there were no marked symptoms except deep stupor toward the end of the disease. In all these cases he found a more or less advanced state of acute disease in the ganglion cells of the brain, but never by any means so universal as in acute delirium. In three cases of acute delirium he found an acute infection by bacteria. In acute delirium he believes that there is a severe toxic action upon the brain, which occurs in a similar fashion in infectious disease, especially in cases of general infection, but which is found in this severity and intensity, especially in regard to the disease of the cells, only in acute delirium. It is still uncertain whether this change is due

directly to the bacteria or, secondarily, to the toxins produced by them.

#### SPIRITUALISM AND INSANITY.

Henneberg<sup>12</sup> thinks that the so-called spirit writing by the aid of Planchette or similar processes is especially disposed to excite mental and nervous disturbances, in the first place, because spirit writing may be practised without any special preliminary training and at any time by a single person, so that it can be practised immoderately. Then the idea that the writer is under direct influence of the spirit may easily excite the delusion of spiritual possession. Furthermore, the production of automatic movements may also have an injurious effect upon the nervous system. Special symptoms in the arm used in the writing are often observed. Trance conditions may readily give rise to hypnosis and somnambulistic states. The disturbances produced by spiritualism are often of an hysterical nature, but persons disposed to hysteria may often, by immoderate indulgence, fall into more pronounced mental states. He reports eight cases of persons with varying mental disturbances following experiments in spiritualism. These disturbances affect not only persons of pronounced neurotic constitution, but also those in whose previous life there was no morbid predisposition.

#### ALCOHOLISM AND CRIME.

Benedikt<sup>13</sup> expresses his dissent from the current views of the unfavorable action of moderate doses of alcohol on nervous function. Discussing the question of excess, he emphasizes the need of distinguishing the various modes of individual reaction. He considers that intemperance is more frequently a symptom than a cause of mental disease; and he insists strongly in the overwhelming importance of economic factors—wages and hours of work—in the alcoholism of the proletariat.

Regarding the attitude of the law towards alcoholic criminals, Benedikt protests against the admission of drunkenness as a ground of legal irresponsibility, except in cases of definite and persistent insanity. Otherwise he would subject the alcoholic criminal to the ordinary penal discipline, supplementing it by treatment in an inebriate asylum. He particularly advocates a classification of cases with a view to the latter treatment; curable drunkards should be dealt with in a reformatory on hospital lines; harmless invalids might be sent to the dement wards of an ordinary asylum; while incorrigible criminal alcoholics, being dangerous to the community, should be confined indefinitely in an institution similar to the criminal lunatic asylum.

#### MANIC-DEPRESSIVE INSANITY.

From a critical study of Kraepelin's maniac-melancholic insanity Galdi<sup>14</sup> concludes that,

<sup>12</sup> Arch. f. Psychol., August, 1901, xxxiv, 990.

<sup>13</sup> Allgem. Österreich. Gerichts-Zeitung, 1901.

<sup>14</sup> Il. manicomia fasc., 1900, I.

<sup>11</sup> Arch. f. Psychol., May, 1901, xxxiv, 490.

though there is no ground in pathology for opposing mania to melancholia, nevertheless clinically a sufficient number of cases occur in which one condition or the other does exist in well-defined and stable form, and that, therefore in a classification based on symptoms it is desirable to retain the two groups, and not to merge them in a single maniac-melancholic psychosis.

#### ASSOCIATIONS FOR THE HELP OF THE INSANE.

In these sheets, reprinted from the *Irrenfreund*, Nos. 11 and 12, 1898, Dr. Brosius gives us some account of the associations for the assistance of the insane which have been formed in German-speaking lands. The first of these was founded in Nassau, but was given up on the death of Lindpaintner in 1829. There is one in Vienna which has now lasted half a century, and one in Styria founded thirty-two years ago. There are now nine in the different cantons of Switzerland, some of which are well supported. Dr. Brosius mentions as many in Germany. The Westphalian Association of St. John founded in 1881 the institution for idiots at Marsberg, which now gives shelter to 329 inmates. The common objects of these associations is to help dismissed lunatics, and to give succor to the families of those who have lost their bread-winners through their being sent to asylums. Some of them also give assistance to epileptics who are not insane. Dr. Brosius mentions that Dr. Jules Morel, the physician of the State Asylum at Mons, has exerted himself to found a similar society in Belgium, and Dr. Bourneville has done the same in France. Dr. Brosius observes that, besides the charitable work done by these praiseworthy associations, they have formed a useful intermediary between the asylums and the public, and have helped to dispel the distrust with which asylums are regarded by the ignorant in Germany. The number of "after-care" associations has increased, one having been formed for the Rhine Province.

#### THE BOARDING-OUT OF INSANE IN GERMANY.

Paetz<sup>16</sup> has an interesting article on the operation of this system in Dun-sur-Auron. Full details of the housing and supervision of the patients are given, with a general description of the whole system. This has been in actual work since 1892, and in March, 1899, some 700 patients were under treatment in Dun Levot and the surrounding districts. Up to the present, women only have been thus cared for. The no-restraint system has throughout been maintained. Senile dementia is the commonest form of insanity among the patients, and with the organic demencias constitutes some 45 per cent of all the cases. Patients with epileptiform seizures, with contractures, and even with hemiplegia, are successfully cared for in this way. It is interesting to learn also that suicidal cases can also be treated on this plan, and, indeed, that the average of suicides is rather under that of ordinary asylum statistics.

<sup>16</sup> *Psychi., Week. No. 1, 1900.*

The system of "boarding out" of patients has extended in Saxony,<sup>16</sup> where, mainly by the efforts of Dr. Alt of Uehtspringe, two small asylums, each for 150 cases, are to be built for the temporary reception of patients who eventually are to be boarded out with families dwelling in the neighborhood. One has already been commenced at Ferishow.

#### Recent Literature.

*The Roentgen Rays in Medicine and Surgery as an Aid in Diagnosis and as a Therapeutic Agent.* Designed for the use of Practitioners and Students. By FRANCIS H. WILLIAMS, M.D. (Harv.). Pp. 658, with 391 illustrations. New York: The Macmillan Co. 1901.

One of the latest textbooks upon the Roentgen Rays in Medicine and Surgery is this by Dr. Williams. In his preface Dr. Williams states that he intends to give a report of progress rather than a final presentation of the subject. It is unnecessary to comment upon Dr. Williams' qualifications. His extensive work with the Roentgen rays is well known to the medical public through his many excellent published articles. He was one of the first in this country to use the Roentgen rays, and by his thoroughness has become an authority.

The author intended to include a complete list of the publications on the medical and surgical uses of the x-rays, but this was omitted because of the lack of space. The book is therefore largely the recital of Dr. Williams' own experience and of his deductions from that experience. While it is to be regretted that it was not possible to give the work of other men more consideration, yet Dr. Williams' experience has been so large that even without that consideration this is a valuable textbook for the student of the x-rays. It would be of even greater value if the process by which certain conclusions were reached were more fully indicated. For instance, it would be helpful to know why, in the author's opinion, one type of machine is better for certain classes of work than another. Dr. Williams may prefer a static machine where another man would prefer a coil. In such cases it would not only be interesting but would also be a great aid in enabling one to decide which machine is the better adapted to his especial work, if the reasons for the preference were given. As a rule they are not made clear.

The scope of the book is wide and covers the whole ground of the x-rays in medicine and surgery. The subject matter divides itself into five parts: Apparatus, the medical uses, the therapeutic uses, the surgical uses and the miscellaneous uses. Each of the most important diseases is taken up in a separate chapter in which the method of using the x-rays in that disease and

<sup>16</sup> Report of Progress of Psychiatry in Germany to Journal Mental Science. January, 1901, p. 152.

the interpretation of the findings are fully discussed. One of the longest and also one of the most interesting parts is that devoted to the various medical uses of the x-rays, and especially interesting is the chapter on Pulmonary Tuberculosis. This part also contains chapters upon Pneumonia, Bronchitis, Pleurisy, Hydrothorax and Pneumothorax, Diseases of the Heart and Thoracic Aneurism. Numerous interesting cases and illustrations are given in each chapter. In the chapter upon the therapeutic uses of the x-rays is given a description of the method employed and a complete list of the diseases in which the x-rays have been used, with many cases and illustrations. In the section upon the surgical uses of the rays, after a preliminary chapter upon apparatus and the methods of examination and a chapter upon the skeleton, Fractures and Dislocations are considered at some length.

There are also chapters upon Foreign Bodies, Diseases of the Bones and of the Joints, Dental Surgery and Calculi. The final chapters include a brief consideration of the Medico-Legal Uses and of the Examination of Foods and Drugs.

The book is attractive in appearance, the type and paper are good and the illustrations are many and excellent. Unlike some, this book has illustrations which illustrate. Altogether, it is a work which everyone interested in the x-rays should own.

**Clinical Hematology.** A Practical Guide to the Examination of the Blood with Reference to Diagnosis. By JOHN C. DACOSTA, JR., M.D., Assistant Demonstrator of Clinical Medicine, Jefferson Medical College; Hematologist to the German Hospital, etc. Containing 8 full-page colored plates, 3 charts and 48 other illustrations. Octavo, 450 pp. Philadelphia: P. Blakiston's Son & Co. 1901.

This book represents a compilation of the knowledge of the blood in health and disease which we possess at the present time. With the exception of a certain number of clinical observations of the blood findings in special conditions, supplementing the records on these subjects already at hand, the work contains nothing new either in fact or theory or in critical consideration of the subject.

It is a question whether special textbooks upon this subject of hematology, of which we have already a considerable number, as also those upon another special branch of clinical examination having to do with the observation of diseases generally, the examination of the urine, have a legitimate place in medical literature.

To our mind, the treatment of this subject should be confined to general textbooks of medicine, where a special chapter can be given to the general subject of the technique and phenomena of the examination in health and disease, while the special findings, peculiar to separate diseased conditions, can be discussed in the articles upon these conditions.

## THE BOSTON Medical and Surgical Journal.

THURSDAY, APRIL 3, 1902.

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### A REVIVAL OF THE WATER-GAS QUESTION.

A LAW was enacted in Massachusetts about 1880 providing that no illuminating gas should be supplied to consumers containing more than 10% of carbonic oxide. By means of this provision, the manufacture of water gas was practically prohibited, since this kind of illuminant, as ordinarily made, contains about 30% of this extremely poisonous agent.

About 1883 a movement was set on foot to secure the repeal of this law, so that water gas might be made and distributed to consumers without subjecting the manufacturers to a penalty. The State Board of Health, Lunacy and Charity was ordered to report upon the question of the comparative effects of coal gas and water gas. The investigation was entrusted to Professors Sedgwick and Nichols of the Massachusetts Institute of Technology, and a series of experiments and observations was made which demonstrated conclusively the increased danger from the use of water gas as compared with that of coal gas, when either is allowed to escape unburned into an occupied apartment.

No action was taken by the legislature at that time, but the issue was renewed year after year, the repealers becoming more and more rampant, until 1890, when the prohibitory clause was practically repealed by legislative enactment. This action was taken, notwithstanding the presentation of a vigorous protest from a very large number of physicians, including members of the State and local boards of health, the president of the Massachusetts Medical Society, the surgeon-general, and from nearly every medical examiner in the State.

Works had already been completed for the manufacture of water gas in Athol, Amesbury, Worcester, Charlestown and Boston before the

repeal of the law, and in some of these places it was being distributed before the repeal had been enacted. As often occurs when financial questions are involved, the rule of the almighty dollar prevailed over the interests of life and health. In view of the experience of New York City, Baltimore and San Francisco, where no restrictions had existed, it was quite commonly predicted that the deaths from gas poisoning would suffer a tenfold increase in communities supplied with water gas. One needs only to consult the death records of Boston and cities so supplied since 1890, to find that this prediction has been more than fulfilled.

During the present session of the legislature the agitation in this direction has taken a fresh start, and has finally resulted in the passing of an order by the House of Representatives on March 24, directing the State Board of Health to reply to certain questions by March 31.

The following are the questions as presented to the board by the legislature, together with the replies of the board to the same:

1. What is the most dangerous element of illuminating gas? Carbonic oxide.
2. What per cent. of this element is contained in coal gas? About 7%. What per cent. in water gas? About 30%.
3. Is the dangerous nature of the gas increased in proportion to the increase in per cent. of this element? Yes.
4. How is death caused by inhalation of water gas? State physiological action. Death is caused by changes in the chemical composition of the blood, by the substitution of poisonous carbonic oxide gas for the oxygen which is normally contained in the blood.
5. How is death caused by inhalation of coal gas? State physiological action. While less in degree, the action is the same as in water gas.
6. Is it more difficult to detect a leaking pipe when water gas is used than when coal gas is used? No.
7. If a person is asphyxiated by illuminating gas does the danger increase in proportion to the carbonic oxide it contains? Yes.
8. What are the chances of recovery after removal from the source of poisoning of a person asphyxiated by coal gas? Water gas? Other things being equal, the experience in Massachusetts shows that the chances of recovery under exposure to escaping coal gas are many times greater than they are under similar exposure to escaping water gas.
9. Which is it easier to blow out the flame from, coal or water gas? Why? We do not know.
10. Has there been an increase or decrease in the number of deaths from gas poisoning since the introduction of water gas? A very decided increase.
11. If there has been an increase or decrease, what is the per cent. of increase or decrease? In the thirteen years previous to the introduction of water gas in Massachusetts (1876-1888), the number of deaths registered as due to poisoning from illuminating gas was 8. The foregoing deaths were, so far as can be learned, caused by the inhalation of illuminating coal gas. In the thirteen years following the introduction of water gas (1889-1901), the number of deaths registered as due to illuminating gas poisoning was 459.
12. Has the danger from broken or leaking pipes or mains increased or diminished since the introduction of water gas? It has increased.
13. What per cent. of carbonic oxide is a safe limit for illuminating gas to contain? Further than has been already said in answer to Question 3, that the danger increases with the amount of carbonic oxide present, the board does not know that there is any safe limit.
14. What is the difference in effect of carbonic acid gas and the carbonic oxide of illuminating gas? State physiological effect. Carbonic acid gas produces asphyxia by interference with respiration and with the renewal of the blood by aeration in the lungs; the carbonic oxide gas of illuminating gas effects a chemical poisoning of the blood, taking the place of the oxygen carried in the blood corpuscles and rendering the blood unfit to support life.
15. State number of deaths from gas poisoning in Boston for the last ten years. How does this number of deaths from gas poisoning in the city of Boston for the years 1898 and 1899 compare with the deaths of the last two years, 1900 and 1901? The number of deaths recorded as due to poisoning from illuminating gas in Boston in the ten years 1892-1901, was as follows: In 1892, 13; 1893, 23; 1894, 24; 1895, 23; 1896, 44; 1897, 45; 1898, 58; 1899, 52; 1900, 25; 1901, 15. Total, 322. The deaths from this cause in Boston in 1898 and 1899 were 110; those in 1900 and 1901 were 40.
16. Is there any relation between the deaths occurring in these various years, and the increased or decreased use of coal or water gas? Yes.
17. If there is, what in your opinion is the relation? That of cause and effect, the greater number of deaths corresponding to the increased use of water gas.
18. Does the continuous absorption of gas in quantities not sufficient to cause asphyxiation tend to the development of disease, such as consumption or heart disease, or may it undermine the system so that these or other diseases may find it easy of attack? In the present state of our knowledge, a definite answer to this question is not possible.
19. Is there any difference between the effect of coal gas or water gas in this regard? We do not know.
20. Can coal and water gas be mixed so as to bring the per cent. of carbonic oxide down to a safe point? We have not been able to ascertain this fact by experiment.

It seems incredible, in view of the facts shown in the foregoing reply of the State Board of Health to the Massachusetts Legislature, and especially in view of the answers to Questions 11 and 15, that such a destruction of human life should have been suffered to continue year after year without hindrance. Great excitement prevails over a few cases and deaths from smallpox, but here is a destructive agent which has caused more deaths in thirteen years in Massachusetts than smallpox has caused in twice as many years, the present epidemic included. As long as a strong protective law existed the deaths were very few, but when human greed prevailed, the law was repealed, with the inevitable result of a greatly increased death-rate from this cause.



## THE EDUCATION OF THE DENTIST.

Now that medicine is being split up into various branches, unthought of a dozen years ago, the question becomes more and more pertinent as to the present and future status of the dentist. Is he a special practitioner of medicine, and as such a just claimant for a medical education, or is his work so limited in scope that he can make no such claim? The question is becoming an increasingly important one, and surely permits of a legitimate difference of opinion.

The work of the dentist is essentially surgical; it requires a very high degree of mechanical skill, and as such may reasonably be regarded as a branch of general surgery. Particularly is this true when the palate and contiguous structures of the mouth are included within the scope of his legitimate work. It must be also generally recognized that the dentist should have a general knowledge of bacteriology and especially of the effects of putrefactive organisms; he must know something of constitutional disease in its effect upon bony or other structures in the mouth cavity; he should have a working knowledge of several neuroses, epilepsy, hysteria, hypochondriasis and like conditions, if he is to do his best by his patients. All this means a considerable general medical training, particularly if associated with clinical instruction, as it should be. At present the instruction of the dental student is rather a hybrid product. At the Harvard Medical School, for example, he is taken through many details of anatomy and experimental physiology, which no stretch of the imagination can associate with his later work, and then is denied the privilege of systematic clinical instruction which would unquestionably be of positive service to him. Either the dental student should be taught less or more, or at least less of some subjects and more of others. We respect the demand which many men in the profession of dentistry are making, that they should have more strictly medical training than is usually accorded them. Such knowledge could not in any case be regarded as a detriment, and certainly would tend to dignify the more special work which the dentist is called upon to do. Where the line of knowledge is to be drawn is naturally a matter difficult of adjustment and one which is likely to change more or less from year to year. In the meantime anatomy and physiology might well be relegated to a less conspicuous place in favor of more distinctly practical branches.

There are, on the other hand, certain dentists who regard knowledge extending beyond the mechanical treatment of the teeth as unnecessary and likely to interfere with manual dexterity. It is a subject which naturally the dentists must

settle among themselves, but a friendly feeling on the part of physicians and a clearer recognition of the fact that a proper treatment of the teeth implies a certain knowledge of the rest of the body in health and disease, would do much toward placing dentistry where it rightly belongs, as a small special field of general medical practice.

## MEDICAL NOTES.

**GREGORY TESTIMONIAL BANQUET.**—Dr. A. M. Dockery, governor of Missouri, will preside at the Gregory testimonial banquet in St. Louis, April 17, and will respond to the sentiment of the State of Missouri. Dr. F. J. Lutz will act as toastmaster. Among others, the following will respond to toasts: Drs. DeForest Willard, Philadelphia; Walter Wyman, surgeon-general United States Marine Hospital Service; N. B. Carson, president St. Louis Medical Society; J. D. Griffith, president Missouri State Medical Society; Chancellor Chaplin; W. G. Moore and C. H. Hughes.

**SUMMER SCHOOL AT UNIVERSITY OF PENNSYLVANIA.**—The note last week in regard to the summer arrangements of the University of Pennsylvania Medical School contained some inaccuracies. The courses at this school begin on the 28th of April, are largely practical in nature, and arranged especially with reference to their usefulness to the practising physician.

**CHOLERA AND PLAGUE IN MANILA.**—Cholera and plague have appeared at Manila. In three days preceding March 31, ten new cases of cholera were reported, with four deaths. Nearly 100 cases had occurred since the outbreak of the disease. Many cases of plague have also occurred in the city, chiefly among natives.

**THE GERMAN CONGRESS FOR INTERNAL MEDICINE.**—This association will hold its twentieth annual session at Wiesbaden from April 10 to 15, under the presidency of Dr. Naunyn, of Strassburg.

**DEATHS FROM CHOLERA AT MECCA AND JEDDA.**—During the week ending March 31 there were reported 928 deaths from cholera at Mecca and 61 at Jedda.

## BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, April 2, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 48, scarlatina 11, measles 112, typhoid fever 8, smallpox 20.

**MORTALITY STATISTICS OF CAMBRIDGE, MASS.**—According to the annual report of the Cam-

bridge Board of Health for the year 1901, just issued, the death-rate for every 1,000 living persons from all causes showed a decrease over the preceding nine years. The deaths (non-residents omitted) numbered 1,574, equally divided between males and females. On an estimated population of 94,000 this made a percentage of 16.72. In 1900 it was 16.87. During previous years it ran from 17 to 19 per cent. The mean annual death-rate for the ten years, 1892 to 1901, inclusive, was 18.35. Scarlet fever shows a decrease of 75 cases from those reported in 1900 and the cases of diphtheria reported show a falling off of 310 cases. During the year there were 607 cases of diphtheria reported to the Board of Health, but the diagnosis was confirmed by culture in only 361 cases. The fact that the clinical diagnosis was confirmed by bacteriological test in only 60% of the reported cases, shows an apparent lack of inclination on the part of the physicians of the city to avail themselves of the facilities of the laboratory. An increase is shown in the cases of measles and smallpox; in the former by 424. Up to Dec. 31 there had been 15 cases of smallpox, 3 of the patients having died. Of cases of typhoid fever there were 96—a decrease of 15 cases. Pneumonia caused 174 deaths; accident, 59. To carry on the work of the Health Department required about \$18,000, with an additional \$10,000 for the maintenance of the temporary hospital for treatment of cases of diphtheria.

**CROWDED CONDITION OF THE LONG ISLAND HOSPITAL, BOSTON HARBOR.**—At a recent conference of city departments, the chairman of the Board of Pauper Institution Trustees called attention to the crowded condition at the Long Island Hospital and the growing need for more room, especially for cases of consumption. To erect the necessary buildings \$100,000 would be needed. The mayor is reported to have said that he thought favorably of providing accommodation for cases of consumption; that the \$150,000 appropriated for a municipal hospital for consumptives was very inadequate, not being more than enough for the land and foundations alone, but that that of course could not be applied to any other purpose.

#### NEW YORK.

**INSURANCE COMPANY'S MEDICAL EXAMINER CANNOT BE AGENT OF PERSON INSURED.**—In an action by Mrs. George Sternaman against the Metropolitan Insurance Company, to recover on a policy on the life of her husband, the question to be determined by the New York Court of Appeals was whether, when an applicant for life insurance makes truthful answers to all questions asked by the medical examiner, who fails to re-

cord them as given, and omits an important part, stating that it is unimportant, the beneficiary could show the answers actually given, in order to defeat a forfeiture claimed by the company on account of the falsity of the answers as recorded. It was agreed in Mr. Sternahan's application that the medical examiner, who was employed and paid by the company, should not be its agent, but solely the agent of the insured. The court, in reversing the Fourth Appellate Division of the Supreme Court, holds that while the parties to the policy could agree that the person who filled out that part of the application to be signed by the insured was the latter's agent, they could not agree in this manner in regard to the blank to be used by the medical examiner. The medical examiner of an insurance company is the agent of the company, and not of the applicant. The knowledge he acquires, his interpretation of the answers given, and his errors in recording them are the knowledge, interpretation and errors of the company itself. The company is, therefore, estopped from taking advantage of what it thus knows and what it thus does, when it issues a policy and takes the premium. After stating that the power to contract is not unlimited, Judge Vann, speaking for the court, says: "Parties cannot make a binding contract in violation of law or of public policy. They cannot in the same instrument agree that a thing exists and that it does not exist, or provide that one is the agent of the other, and at the same time, and with reference to the same subject, that there is no relation of agency between them. . . . They cannot by agreement change the laws of nature or of logic, or create relations, physical, legal or moral, which cannot be created. In other words, they cannot accomplish the impossible by contract." Chief Judge Parker and Judge Gray dissented.

**THE FEEBLE MINDED.**—In the thirty-fifth annual report of the State Board of Charities submitted to the legislature on March 17, it is recommended that all feeble-minded children now in various private institutions, where they are supported at public expense, and in county, city and town almshouses, should have the benefit of training in the State Institution for Feeble-Minded Children. That institution is now in the city of Syracuse, but as its accommodations are inadequate, its removal is recommended to a less costly site in the country. Feeble-minded women of child-bearing age who are being supported at public expense should be transferred to the State custodial asylum at Newark, in order that they may have the protection they need, and the various localities of the State may be saved the expense of providing for them and their illegitimate, and frequently degenerate, offspring. Such

women, it is stated, cannot be properly cared for in almshouses, and their continued presence in such institutions is frequently a source of scandal. The enlargement of the Craig Colony for Epileptics is also urgently recommended. According to the latest reports received from the superintendents of the poor, there are now about 500 dependent epileptics, of whom nearly 300 are in county, city and town almshouses, awaiting admission to that institution. The board is of the opinion that no almshouse in the State is properly equipped for the care of this unfortunate class, and that they should all be provided for in the Craig Colony.

**HOSPITAL SATURDAY AND SUNDAY ASSOCIATION.**—The distributing committee of the Hospital Saturday and Sunday Association met in the mayor's office on March 25 and distributed among the thirty-eight hospitals belonging to the association the undesignated fund of the general collection of 1901, on the basis of free work done by each. The total collection amounted to about \$80,000, and, after deducting from this the contributions for specially designated institutions, and a sum sufficient to cover expenses, there remained \$60,000 for the general distribution. The hospitals receiving the five largest amounts were the following: Montefiore Home and Hospital for Chronic Invalids, \$6,600; St. Luke's Hospital, \$6,038; Mount Sinai, \$5,351; Roosevelt, \$4,346; German Hospital and Dispensary, \$3,824.

**TEST OF FINSEN LIGHT TREATMENT TO BE MADE.**—The president of the New York Board of Health is authority for the statement that the red-light treatment for smallpox of Dr. Finsen of Copenhagen, which was tried for a short time some years ago, with very doubtful results, has recently been under the consideration of the department, and that it is probable that an arrangement will be made for giving the method a more thorough test. Dr. Finsen brought it to the attention of the profession in papers published in *La Semaine Médicale* in 1894, and the *British Medical Journal* in 1895, and in a recent article in *Chamber's Journal*, in which it is described, it is suggested that a thorough trial of the treatment should be made in England.

**TENEMENT HOUSE REFORM.**—During the recent session of the legislature determined efforts were made by the opponents of tenement house reform to nullify, by amendments, some of the most important requirements of the present law. Fortunately, however, they were unsuccessful, except in one particular, the permission to use as sleeping rooms certain "inside rooms" in old houses, which in the interests of health should not be so used. The attempt to restore the close,

narrow airshaft, which in the past has been the cause of more preventable sickness among tenement dwellers than any other factor, failed.

**MORTALITY FROM SMALLPOX.**—The rate of mortality from smallpox is said to be higher than was the case ten years ago. In the opinion of Dr. S. Dana Hubbard of the Health Department, who was himself in attendance at the smallpox hospital on North Brother Island for two years, the reason for this is that the opening of the new regions in the far East has brought new virus here, and it is the malignancy of this which is responsible. He believes that the existing prevalence of the disease is due to the large amount of travel between this country and the Philippines.

**NO RESTRICTIONS PLACED ON LEPERS IN NEW YORK.**—In the report of the Leprosy Commission of the Marine Hospital Service, sent to the United States Senate by the Secretary of the Treasury on March 24, it is stated that out of 278 cases of the disease now in this country, seven are in the city of New York, four in Brooklyn and three in Manhattan. While formerly lepers found in New York were isolated, at present no restrictions are placed upon them, as it is held by the health authorities that in this climate the disease has no contagious element.

**MINIMUM AGE OF STUDENTS ADMITTED TO STATE EXAMINATION.**—Among the bills passed by the legislature and signed by the governor was one providing that medical students admitted to preliminary State examination must be at least nineteen years of age.

### Miscellany.

#### HARVARD'S NEW ENDOWMENT.

*The New York Medical Journal* comments as follows on the proposed expansion of the Harvard Medical School:

"A twinge of jealousy on the part of us New Yorkers might be pardonable in view of the fact that so much New York money goes to swell the magnificent endowment of the Medical School of Harvard University, amounting to nearly \$5,000,000, but we sink any such sentiment in a feeling of joy that a medical school anywhere in the country has met with such good fortune, and we feel sure that most of us would prefer that it should be Harvard if it had to be any other than a New York school. Harvard is always thought of as associated with Morton's original demonstration of the practicability of surgical anesthesia, with the delightful Holmes, with Bigelow's exposition of the mechanism of the hip joint, and with the same brilliant surgeon's elaboration of rapid lithot-


rity with evacuation. Surely there are few other teaching institutions, if there are any, whose men have so raised and sustained the prestige of our calling, and there is none that more thoroughly deserves to be furnished with all the resources that wealth can command. We are confident that our Boston colleagues realize the tremendous responsibility that has been put upon them. They must speedily make the Medical School of Harvard University the world's greatest institution in the teaching of medicine, and it must become renowned above all others for research as well as for teaching. There is nothing to hinder them; the best men can be attracted from all parts of the country,—from the world at large, for that matter,—and laboratories, libraries and clinics can readily be established on a scale hitherto hardly dreamed of. And the work of the school must not be confined to its material territory; commissions of investigation will have to be sent out from time to time as occasion may arise, tropical medicine will have to be studied and taught, military medicine will have to be highly cultivated, and publications of a high order will have to be issued regardless of the possibility of their being made to 'pay.' All these things, we feel certain, will be amply provided for."

#### PATHOLOGICAL EXHIBIT OF AMERICAN MEDICAL ASSOCIATION.

THE Committee on Pathological Exhibit for the American Medical Association is anxious to secure material for the coming session at Saratoga, June 10 to 13 inclusive. This exhibit was accorded much praise and comment during the sessions at Atlantic City and St. Paul respectively, where were collected valuable contributions from all parts of the country. The material included not only pathological specimens, but some from the allied fields; bacteriology, hematology, physiology and biology were well represented. Exhibits of new apparatus, charts, etc., used by teachers of pathology and physiology in medical colleges are also desired. This exhibit has already become a permanent feature of the annual sessions of the American Medical Association, and the committee is desirous of securing its list of exhibits as early as possible, and to this end asks those having desirable material to communicate with any member of the committee. To contribute to the value of the work, it is suggested that as far as possible each contributor select material illustrative of one classification, and by such specialization enhance the usefulness of the display. Those lending their material may feel assured that good care will be given their exhibits while in the hands of the committee, and due credit will be given in the published reports. The committee consists of F. M. Jeffries, 214 East 34th Street, New York City; W. A. Evans, 103 State Street, Suite 1403, Chicago, Ill; Roger G. Perkins, Western Reserve Medical School, Cleveland, Ohio.

#### METEOROLOGICAL RECORD

For the week ending March 22, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.				Relative humidity.			Direction of wind.		Velocity of wind.		We'eth'r		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.		
S...16	30.30	48	61	34	92	88	90	S E	S E	4	16	O.	O.	T.	
M...17	29.90	50	56	43	90	88	89	W	N	9	6	O.	O.	.79	
T...18	29.90	34	43	26	66	47	56	N	N W	15	22	O.	C.		
W...19	29.50	34	42	28	82	67	74	N W	N	30	26	N.	O.	.09	
T...20	29.71	38	43	34	77	96	86	N	N W	12	5	O.	R.	.12	
F...21	29.84	46	52	40	88	72	80	N	N W	12	6	O.	O.	.01	
S...22	29.93	52	67	48	75	67	71	N	N	10	4	O.	O.	T.	
	29.87		51	36			78							1.01	

\* O., cloudy; C., clear; F., fair; G., fog; H., haze; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall. ☞ Mean for week.

#### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 22, 1902.

CITIES.	Population,* Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Cerebro-spinal meningitis.	
New York . .	3,665,352	1,386	457	24.78	14.47	2.79	.43	.29	
Chicago . .	1,862,828	537	176	22.53	16.38	1.86	.98		
Philadelphia . .	1,349,624	476	84	20.37	16.17	2.52	2.31		
St. Louis . .	603,717	—	—	—	—	—	—	—	
Baltimore . .	525,330	188	57	17.55	12.23	1.06	.53		
Cleveland . .	411,826	—	—	—	—	—	—	—	
Buffalo . .	375,742	—	—	—	—	—	—	—	
Pittsburg . .	341,401	136	46	57.33	—	2.94	35.28	1.47	
Cincinnati . .	332,032	—	—	—	—	—	—	—	
Milwaukee . .	304,975	—	—	—	—	—	—	—	
Washington . .	289,537	64	12	20.28	15.80	4.68	—	—	
Providence . .	185,870	—	—	—	—	—	—	—	
Boston . .	588,736	240	69	25.85	14.59	1.66	1.25	.41	
Worcester . .	127,337	19	12	21.04	15.78	—	—	5.26	
Fall River . .	111,872	41	19	24.39	26.83	—	—	—	
Lowell . .	99,574	43	16	16.27	4.65	2.32	—	—	
Cambridge . .	96,334	29	7	24.13	31.03	—	—	—	
Lynn . .	71,144	18	—	16.66	16.66	—	—	—	
Lawrence . .	67,275	23	7	8.69	26.09	—	—	—	
Springfield . .	66,854	22	5	9.09	4.54	—	—	—	
Somerville . .	65,882	17	4	11.76	17.64	—	—	5.88	
New Bedford . .	65,574	22	6	13.63	40.90	—	—	—	
Holyoke . .	48,065	—	—	—	—	—	—	—	
Brookton . .	43,208	11	3	9.09	—	—	—	—	
Haverhill . .	40,392	12	—	—	—	—	—	—	
Salem . .	36,567	11	2	—	—	—	—	—	
Newton . .	36,536	13	2	—	—	—	—	—	
Malden . .	35,890	2	1	—	—	—	—	—	
Chelsea . .	35,264	11	—	—	—	—	—	—	
Fitchburg . .	33,848	9	—	—	—	—	—	—	
Taunton . .	32,759	8	—	—	—	—	—	—	
Everett . .	27,114	7	1	—	—	—	—	—	
North Adams . .	26,583	6	1	—	—	—	—	—	
Gloucester . .	26,121	—	—	—	—	—	—	—	
Quincy . .	25,307	6	1	—	—	—	—	—	
Waltham . .	24,612	6	2	—	—	—	—	—	
Pittsfield . .	22,311	5	—	—	—	—	—	—	
Brookline . .	21,679	5	1	—	—	—	—	—	
Chicopee . .	20,390	5	2	—	—	—	—	—	
Medford . .	20,014	5	1	—	—	—	—	—	
Newburyport . .	14,478	3	—	—	—	—	—	—	
Melrose . .	13,384	8	—	—	—	—	—	—	

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,433; under five years of age, 999; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal

diseases, whooping cough, erysipelas, fevers and consumption) 808, acute lung diseases 502, consumption 407, scarlet fever 54, erysipelas 13, typhoid fever 76, whooping cough 26, cerebrospinal meningitis 9, smallpox 24, measles 37, diarrheal diseases 75.

From whooping cough, New York 12, Chicago 4, Philadelphia 2, Baltimore 4, Boston 2, Lawrence 1, Quincy 1. From cerebrospinal meningitis, New York 4, Pittsburg 2, Boston, Worcester and Somerville 1 each. From scarlet fever, New York 33, Chicago 13, Philadelphia 4, Pittsburg 4. From erysipelas, New York 4, Chicago 5, Philadelphia 2, Boston 2. From smallpox, New York 13, Philadelphia 3, Pittsburg 2, Boston 2, Cambridge 1, Melrose 1. From typhoid fever, New York 6, Chicago 5, Philadelphia 11, Baltimore 1, Pittsburg 48, Boston 3, Cambridge 1, Springfield 1.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending March 8, the death-rate was 20.5. Deaths reported 5,835; acute diseases of the respiratory organs (London) 589, whooping cough 120, diphtheria 89, measles 167, smallpox 92, scarlet fever 52.

The death-rate ranged from 10.1 in Smethwick to 30.4 in Barrow-in-Furness; London 24.6, West Ham 17.4, Croydon 15.1, Brighton 15.1, Portsmouth 20.1, Southampton 15.0, Bristol 19.6, Birmingham 21.2, Leicester 22.7, Nottingham 20.8, Birkenhead 18.6, Liverpool 21.5, Manchester 23.5, Salford 17.9, Bradford 17.2, Leeds 18.6, Sheffield 20.8, Hull 17.4, Newcastle-on-Tyne 16.9, Cardiff 16.4.

#### OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MARCH 20, 1902.

BAILHACHE, PRESTON H., surgeon. Leave of absence for five days from March 13, 1902, under paragraph 179 of the regulations.

MAGRUDER, G. M., surgeon. Granted extension of leave of absence on account of sickness, for one month from Feb. 22. March 17, 1902.

WERTENBAKER, C. P., passed assistant surgeon. To proceed to Lincoln, Neb., for special temporary duty. March 19, 1902.

RUSSELL, H. C., assistant surgeon. Granted leave of absence for five days from Feb. 13, 1902, under paragraph 181 of the regulations.

PARKER, H. B., assistant surgeon. To proceed to Mobile, Ala., for special temporary duty. March 17, 1902.

WHITE, M. J., assistant surgeon. Relieved from duty at the Marine Hospital, San Francisco, Cal., and assigned to special duty at San Francisco from March 19. March 20, 1902.

HOB DY, W. C., assistant surgeon. Detailed as inspector of unseizable property at Savannah Quarantine. March 14, 1902.

RICHARDSON, T. F., assistant surgeon. To proceed to Philadelphia, Pa., for special temporary duty. March 19, 1902.

CURRIE, D. H., assistant surgeon. Relieved from duty at Hygienic Laboratory to take effect March 29, 1901. Relieved from special temporary duty at San Francisco, and assigned to duty at San Francisco, Cal. March 20, 1902.

HOLT, J. M., assistant surgeon. Granted leave of absence for seven days from March 14. March 14, 1902.

MCCORMAC, J. F., acting assistant surgeon. Granted leave of absence for fifteen days from March 28. March 15, 1902.

WALKER, R. T., acting assistant surgeon. Granted leave of absence for five days from April 8. March 17, 1902.

WETMORE, W. O., acting assistant surgeon. Granted leave of absence for fourteen days from April 3. March 17, 1902.

MAGUIRE, E. S., senior pharmacist. Leave of absence for thirty days granted Pharmacist Maguire by department letter of Feb. 4, 1902, revoked. March 14, 1902.

GIBSON, R. H., senior pharmacist. Granted leave of absence for twenty-five days from March 29. March 17, 1902.

#### APPOINTMENTS.

WALTER L. SAVAGE of New York appointed acting assistant surgeon for duty at Buffalo, N. Y., March 18, 1902.

ALBERT F. STUART of Maine appointed acting assistant surgeon for duty at Portland, Me., March 18, 1902.

#### SOCIETY NOTICES.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—The society will meet at Sprague Hall, Medical Library Building, on Monday, April 7, at 8.15 P.M.

Papers: Dr. Edgar Garceau, "Tuberculosis of the Urinary Tract." Lantern Slides; Dr. L. R. G. Crandon, "Tuberculosis of the Prostate"; Dr. Paul Thorndike, "Remarks on Tuberculosis of the Testicle, with Report of Cases"; Dr. W. R. Brinckerhoff, "Experimental Study of Leucocytosis in Rabbits." Dr. C. J. Blake will report for the Committee on "The Establishment of an Academy of Medicine."

ARTHUR K. STONE, M.D., Secretary,  
543 Boylston Street.

WESTERN OPHTHALMOLOGIC AND OTOLARYNGOLOGIC ASSOCIATION.—The seventh annual meeting will be held in Chicago, April 10, 11 and 12, 1902.

WM. L. BALLINGER, M.D., Secretary, Chicago.

#### RECENT DEATHS.

DR. ALBERT HORATIO GALLATIN of New York, a grandson of Albert Gallatin, the Secretary of the Treasury under Thomas Jefferson, died from cardiac disease on March 25, at the age of sixty-three. He was born in the city of New York and was graduated from the New York University. During the Civil War he served as assistant surgeon of the 12th Regiment, and surgeon of the 23d Regiment, New York Volunteers. After the war he devoted himself to scientific pursuits, in which he attained considerable distinction, and at different times he was professor of chemistry in Cooper Union, the Rensselaer Polytechnic Institute of Troy, and the University of the City of New York.

#### BOOKS AND PAMPHLETS RECEIVED.

Annual Report of the Board of Health of the City of Worcester, for the Year Ending Dec. 31, 1901. Worcester: Press of F. S. Blanchard & Co. 1902.

The Rontgen Rays in Medical Work. By David Walsh, M.D. (Edin.). Parts I and II. Third edition. Illustrated. New York: William Wood & Co. 1902.

Manual of Antenatal Pathology and Hygiene. The Fetus. By J. W. Ballantyne, M.D., F.R.C.P.E., F.R.S. (Edin.). Illustrated. Edinburgh: William Green & Sons. 1902.

Morphinism and Narcomanias from Other Drugs, their Etiology, Treatment and Medico-Legal Relations. By T. D. Crothers, M.D. Philadelphia and London: W. B. Saunders & Co. 1902.

The International Medical Annual. A Year Book of Treatment and Practitioner's Index. By many contributors. Twentieth Year. New York and Chicago: E. B. Treat & Co. 1902.

Johnson's First Aid Manual. Suggestions for Prompt Aid to the Injured in Accidents and Emergencies. Edited by Fred B. Kilmer. Illustrated. New Brunswick, N. J.: Johnson & Johnson. 1901.

Pneumonia in the Light of Modern Research. By Stephen Smith Burt, A.M., Yale; M.D., Columbia, Professor of Medicine and of Physical Diagnosis, New York Post-Graduate Medical School; Attending Physician New York Post-Graduate Hospital. Reprint. 1902.

Blood Examination Applied to Surgery. By Irving Phillips Lyon, M.D., Instructor in Clinical Medicine, University of Buffalo; Clinical Pathologist to the New York State Pathological Laboratory, University of Buffalo, and to the German Deaconess Hospital, Buffalo. Illustrated. Reprint. 1901.

Pseudomembranous Inflammation of the Mucous Membranes Caused by the Pneumococcus. Review of the Literature and Report of a Case of Pneumococcal Pseudomembranous Exudation on the Mucous Membranes of the Mouth, Tongue, Throat, Nose, Eyes, Glans Penis, Anus, Etc., Complicating Acute Lobar Pneumonia. By Charles Cary, M.D., and Irving Phillips Lyon, M.D., of Buffalo, N. Y. Illustrated. Excerpt. 1901.

The American Year Book of Medicine and Surgery, being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery, drawn from Journals, Monographs and Textbooks of the Leading American and Foreign Authors and Investigators, collected and arranged, with Critical Editorial Comments. By Samuel W. Abbott, M.D., and others under the general editorial charge of George M. Gould, M.D. Two volumes. Philadelphia and London: W. B. Saunders & Co. 1902.

## Original Articles.

## THE SCHOOL AND THE HEALTH OF SCHOOL GIRLS.

THE SCHOOL IN ITS EFFECT UPON THE HEALTH OF GIRLS.<sup>1</sup>

BY E. G. BRACKETT, M.D., BOSTON.

WHEN one sees a large number of children during the most important part of their lives, he is impressed with two facts: (1) The large number of girls who are weak, anemic and nervous, and (2) the very marked difference between the condition of the girls and that of the boys, when the procession reaches the developmental stage. At this point there are a large number of girls who are distinctly below par, who show evidences of distinct neuroses, and who are working dangerously near or beyond their fatigue limit. Of the children who apply to the hospitals in consequence of physical developmental defects hardly more than 5% are boys.

That this condition exists is a matter of observation, and to this is being given constant testimony by those who are continually being called upon to care for these conditions, occurring in so large a number of girls during this age. When we look for statistics concerning the health of children at this age we find indisputable ones taken from a large number of observations and carefully recorded. Hertel's investigation of 4,352 school children, found in 3,141 boys 31%, and in 1,211 girls 39%, who had chronic disorders. By commissions appointed in Sweden and Denmark it was found by one that of 17,595 boys 29%, and of 11,646 girls 41%, had chronic disorders. By the other it was found that of 11,210 boys 44%, and of 3,000 girls 61%, came under the same class. It is noteworthy—this report goes on to say—that one-half of the girls were chronically ill in their thirteenth year. Upon entering school 20% were chronically ill; but the curve of illness rises rapidly after entering, until in the eighth year 28% were ill.

Professor Key found that children who had less sleep than the normal amount (which he considered to be from ten to eleven hours for the young children, and eight to nine for the older) showed in the upper classes 5%, and in the lower classes 8%, more cases of illness than the other children. Out of 100,000 English school children, 8% suffered from nervous disorders of various kinds.

It is true that these statistics do not represent the actual condition here with us. They may not be paralleled by ours, but they do suggest grave questions in regard to conditions of child life, and in the minds of the medical profession naturally excite inquiry as to the causes which lead to them.

As a matter of experience and observation, we know that excessive mental exertion during the

developing period interferes with the healthy and normal course of development. No special form of disease may show itself then, but the foundations may be laid and be manifested later. On physiological grounds we "know that an organism which does not receive the full share of development which was laid out for it by nature, and which it under favorable surroundings should have had, experiences during its lifetime a reduction of its achieving power and a lessening of its power to resist disease."

With these conditions, so frequently seen among our girls, of physical inability, abnormal development and mental exhaustion, with the accompanying distaste for work, and recognizing that the causes which are operative in them are, excessive mental work, with the resulting development of one part of the organism at the expense of the other; failure to adapt the training to individuals; too little sleep, and too little play out of doors, the question then naturally arises as to the responsibility for this condition. Clearly it is divided between the home and the school. Many of the conditions are beyond the reach of the school, and the co-operation of the home should be expected to supplement the training in school life, which must play so large a part, and, therefore, the home should demand for itself a proportion of the time for that development which the school cannot and is not expected to supply. I refer to family duties, recreation and social associations, without which the child is a machine, and which need not demand an unreasonable amount of time. The household duties which, from necessity, some of the children are expected to perform, are not excessive except in some instances. From a large number of children taken from among the working class there was found an average of less than three hours per week to children between the ages of ten and sixteen.

Recognizing that the school does play an important part in the life of the child we may ask: What is the school demanding of the girl at the time when the physical claims are insistent, and cannot be disregarded without injuring her health and menacing her complete development; moreover, are the demands of the school consistent with a due amount of home life, or do they encroach upon the time which belongs to the parents for the training of their children?

The regular school sessions of five hours a day and five days a week is practically a constant standard, but the amount of outside work varies with the requirements of the various schools. In some of the older schools the figures vary from forty-four to fifty-two hours of required work per week. From two to fifteen hours per week, of outside work, was required of 124 school children of between the ages of ten and sixteen who were requiring attention for their physical condition. This made the minimum five and one-half, and the maximum eight, hours of mental work per day. The question of importance is, whether this amount of work is injurious to children, and par-

<sup>1</sup> Read before the Boston Society for Medical Improvement Dec. 16, 1901.



ticularly is it injurious to girls. The laws of Massachusetts have restricted the working hours of minors to about eight and one-half hours per day, as it deems that amount of physical work all that the developing child should be allowed to do.

Yet we know that the recovery from mental fatigue is much slower than that from physical, but we approach dangerously near or exceed this limit with the severer tasks of mental work, and it would be but natural to expect these long hours should show their effects.

Investigations also have shown that chronic disorders are especially frequent among children whose instruction extends over the whole day, and that the percentage of disease is greater among those who go to school all day, than those who go in the morning only. Hertel found that illness was 7% higher among children who worked excessively than those who worked a usual amount.

It is a known fact that during the periods of accelerated growth there is a noticeable diminution in the power to resist fatigue, and the most important of these periods of growth — when the foundations of the health of the woman are being laid — occurs at a time when excessive demands are often made upon her mental powers. The girl needs an elastic consideration which is not necessary for the boy, for her more delicate nervous organization enables her to carry through an amount of work to a brilliant finish, leaving the results of this in her physique to manifest themselves later. Naturally the records of attendance and number of graduates do not show this most serious consequence.

We would not for a moment wish to underrate the importance nor the effects of the school, but at the same time there is the feature which must at times exert a far-reaching injurious influence, namely, that of its inelasticity. The conditions which are imposed on the whole should not be those which might with safety apply to the selected few, or to the most favored class, but to the average individual who is to make up later in life the bulk of the working force, and we must believe that the school is not accomplishing the most desirable and complete fulfilment of its highest purposes, if our educators do not recognize the necessity of making the training correspond to time and rate of development and growth of both the body and mind.

The school is responsible for much of the conditions found among our women in so far as its demands interfere with the usual and necessary amount of sleep and out-of-door play. It is responsible in so far as by a competitive or ranking system, it increases, during the periods of accelerated growth, its demands on the mental powers, and in so far as it trains the mind at the expense of the body.

It is responsible in so far as this system fails to recognize individual variations in the child, and especially between the boy and girl, and thus fail to adapt the training to the individual need, for

not only is the method not adapted to girls as individuals, but not even to girls as a whole.

We can only turn to our educators with this condition which so frequently meets us, and ask if there is not some way by which the need of the individual may be provided for in our public schools.

## THE HEALTH OF SCHOOL GIRLS.<sup>1</sup>

BY ROBERT W. LOVETT, M.D., BOSTON.

So far as theoretical considerations bearing on overwork are concerned, there are certain well-known and well-accepted facts that must be considered.

During the periods of rapid growth, less mental work can be safely required of children than when growth is less rapid or has been finished. The size of the brain in its relation to body weight and to the other organs is much larger during the entire period of youth than at other times. It does not assume a constant relation to these organs until the eighteenth or twentieth year.

Certain physiological experiments upon the working of children's brains must be considered because they have a direct bearing upon the question of the arrangement of studies and the examination question. It was found that there was an increase of 33% in the mistakes made by children in dictation tests given early in the morning and after four or five hours of study and recitation.

In pupils from twelve to thirteen years of age it was found in boys that in the third quarter of an hour of continuous work there began a marked deterioration in their ability to apply themselves to mental work. Taking five hours of interrupted work such as the ordinary school routine furnishes, it was found in a ten-minute test taken every succeeding hour that the amount of work increases up to the third or fourth hour but diminishes in the fourth or fifth, and that the number of pupils making no mistakes decreases from the first to the fifth hour. The fact that the mental processes are impaired by continuous application in the third quarter of an hour of continuous work is too important to be set aside easily.

This bears directly on the question of examinations. Not only is the worry beforehand detrimental, but the stimulating effect of competition is undesirable apart from the well-established fact of mental exhaustion from continuous mental application. It is significant that Ignatieff found that 191 out of 242 children lost on the average three and one-half pounds during the examination period.

The relative endurance of boys and girls is of the greatest significance as bearing on the question. Christopher, in some work recently done in the Chicago schools, tested 5,636 children with the ergograph as to the conditions of fatigue. The ergograph is a machine in which a weight —

<sup>1</sup> Read before the Boston Society for Medical Improvement Dec. 16, 1901.

7% of the pupils' weight — is rhythmically raised by the middle finger of one hand. By a recording drum the muscular contractions and their variation are recorded. Not only did he establish a definite daily curve of endurance diminishing toward noon but rising after the noon hour and diminishing again toward night, but he established the relative endurance of boys and girls. The endurance of girls beginning at five years old is slightly less than that of boys of the same age, but the curves remain parallel until about nine, when the girls' endurance diminishes somewhat in comparison to the boys'. At about fourteen a rapid change in the relation of the two takes place, and although the boys' endurance increases steadily till nineteen or twenty, the girls' endurance ceases to any extent from fifteen onward — a most significant fact.

These, to be sure, are theoretical considerations, but they show that children are easily fatigued by continuous mental effort, that frequent and long examinations must be detrimental, and that girls possess less endurance than boys, especially at, and after, the time of puberty.

These are only a few of the many facts accumulated by those who have studied the question. The practical point that concerns us is this, are the pupils, and especially the girls in the Boston schools, overworked? Theoretical considerations may have their weight in the settlement of this question, but practical facts are needed so far as they may be obtained, and I have addressed myself to some of the teachers of physical training and other teachers in Boston and the neighborhood, as persons most likely to form an accurate opinion on this subject. I am largely indebted to them for whatever facts I may have accumulated. Any figures presented relate to the Boston schools.

In the school year ending March, 1901, there were in round numbers 82,000 pupils in the schools — 4,400 in the kindergarten grade, 31,400 in the primary schools, 40,500 in the grammar schools, and only 5,600 in the high schools.

The percentage of pupils absent in each of these grades is interesting, but not, I think, of much significance so far as the question of overwork is concerned. The percentage of girls absent is always higher than that of boys.

	AVERAGE ABSENCE.	
	BOYS.	GIRLS.
In the kindergarten . . . . .	22.7	26
Primary . . . . .	11.2	13
Grammar . . . . .	7.4	9
High and normal . . . . .	4.6	5.8

This means apparently that the further along the pupil gets, the more important his education appears in the eyes of his parents. In the primary and grammar grades there are more boys than girls, but in the high schools the girls outnumber the boys by 700.

I next investigated the question as to how many girls left school on account of ill health, and the figures deal wholly with the normal and high school grade. In three schools of this grade where figures were obtainable, 94 girls out of

1,938 left on account of ill health during the year. These are not all the pupils who leave, however. In one of these schools where 4% of the girls are put down as leaving on account of ill health, in the above list, the total number of girls leaving for all causes was 11%.

These figures are not, I believe, impressions, but are from fairly accurate records. Only 5,600 of 82,000 pupils are in the high schools. They represent a selected class who want a good education; their average daily absence is only 5%, as contrasted with 9% in the grammar grade. The fact that in this selected class one girl in twenty leaves school on account of ill health, is not to be overlooked. But if one waits for the ill effects of overwork to be demonstrated by the breaking down of the pupils, the harm has been done. It represents the end results. If we are to do good we must investigate overwork in its earlier grades.

The next question asked of the teachers was as follows: Do the girls, on the average, in your opinion, leave the school in better or in worse condition from that in which they entered? The answers of the teachers on this point differed widely. One class of seventy-six girls were questioned on this point at graduation. Thirty-nine had been improved, twenty-six had noted no change, eleven were not so well. One teacher replied: "I think the point to be made is not that the girls graduate in a worse physical condition than when they enter, but that they are not as much better and stronger as they should have been made during the critical years from fourteen to eighteen." There is no consensus of opinion that the girls are better when they leave. Some teachers were definite in their statement that they were not as well on the average.

As to the condition of the health in school, in only one school can any accurate record be given in the case of about 200 pupils. Here the attendance was exceptionally regular, with an average absence of about two days per year for each pupil. Yet 30% had habitual headaches. Constipation, cold hands and feet, biliousness or indigestion were each present in from 5 to 15%. The average amount of home study was about four hours (it is thought by the teachers in many instances to exceed this), and the average amount of outdoor exercise sixty minutes. The trip to and from school is, as a rule, counted in this hour by the pupil. This school is, I fancy, not wholly representative, but presents the worse side of the condition.

Much of the so-called overwork, according to these teachers, lies in the home routine and outside duties — late hours, social or household demands, injudicious food, and the like. This is undoubtedly true, and it may be the sum total that is injurious rather than school work *per se*. But the remedy is none the less needed and the school should be corrective in its good effects rather than cumulative in its bad effect.

On one point the teachers of physical training and the other teachers are in accord. The remedy lies in a measure in the development

of physical training in proper school gymnasiums under proper conditions. There is no dissenting voice among them and we must bend to their opinion. Exercises given in a poorly ventilated room between the desks amount to very little but are good as far as they go. A proper gymnasium is important. They are all agreed as to the effect of one in improved health, better mental work, improved physical development, and several have insisted that such a routine induced better home condition in many pupils. The high schools in Boston without gymnasiums are: The Girls' High (1,075 pupils) has a hall, the Girls' Latin (357 pupils) has a hall, the Boston Normal (214 pupils) has not even a special room. In these schools are about 1,650 pupils, mostly over thirteen years old, representing about half of the girls attending high schools in Boston without gymnasiums or proper facilities for gymnastic work, except such gain as may be got by free standing work in an empty hall not intended for the purpose. In no one of the grammar schools, containing 40,500 children, the bulk of whom are between nine and fourteen, is there a gymnasium. Two or three have a little apparatus in the corridor.

Whatever the merits of the school curriculum may be, we must pay attention to the opinion of these teachers as to the remedial effect of proper physical exercise in combating the effects of overwork, if it exists. It seems to be the business of the medical profession to call attention to this, as the general community is not awake to the situation in any sense.

I have not dwelt on the evil effects of examinations, because there was so much to be said on the other question. The teachers are awake to it, and many are minimizing these bad effects. One teacher gives no marks on examinations except passed or failed; the anxiety to attain higher rank than one's neighbor has gone, and the girls have improved. At another school, examinations are arranged so that no girl need take all her examinations during her menstruation. Many of the teachers are awake to the importance of short periods for examinations and long intervals between them. Yet, in a neighboring city, I am told, three-hour examinations are still given to grammar-school children.

In short, the health of school girls about puberty seems to be far from what we would like to see it. It seems the result of school work plus outside demands. The school part should be corrective and not an added burden. The development of proper gymnasiums and a sufficient importance given to physical training seems one important part of the remedy.

VIENNA has lost another of its great men. The death of Kaposi was followed by the retirement of Krafft-Ebing after thirty years' incumbency of the chair of psychiatry, etc. His leave-taking was an impressive ceremony. He will make his home henceforth at Graz.—*Journal American Medical Association.*

## STATISTICS REGARDING HEALTH OF SCHOOL GIRLS.<sup>1</sup>

BY EDWARD MUSSEY HARTWELL, PH.D., M.D., SECRETARY BOSTON STATISTICS DEPARTMENT.

I WAS invited to speak on the statistical aspects of the question under discussion, and more particularly with regard to the number of girls who leave school on account of ill health. I must acknowledge at once that so little scientific study has been devoted to the health of the school population in the United States, that statistics relating to the effects of school life that are at once comprehensive and trustworthy are hardly to be found anywhere in this country. For the most part, the subject has been ignored. Broadly speaking, state and local boards of education render no account to the public of the number of school children who are temporarily or permanently incapacitated by disease, or of the number whose names are transferred from the school rolls to the register of deaths. The deaths of school children as such, at least in Massachusetts, are not required to be recorded by anyone.

It is useless, therefore, to attempt to determine accurately even the crude death-rate of Boston school children, not to speak of special death-rates due to particular diseases. An approximate death-rate may be computed if we assume that the age period, 5 to 15 years, covers what is termed the school age. It must not be forgotten that it is an assumption, since there are some hundreds attending school who are under 5 and several thousands between 15 and 20 years of age;—the school census is taken annually to determine the number of persons in the age period, 5 to 15. Their number in 1900 was 90,144, of whom 77% were in public schools, 16% in private schools and 7% not in school. In 1900 there were 483 deaths of persons of the age period, 5 to 15. By dividing the total deaths of persons of 5 to 15 into three classes proportionate to the number of persons of that age period found in public and private schools and not at school, and then computing the ratio of deaths to the thousand living in each class according to the school census, we find the following approximate death-rates: Pupils in public schools, 6.1 per thousand; in private schools, 5.5; children not in school, 4.9; persons 5 to 15 years of age, (1) including those not in school, 5.4; (2) excluding those not in school, 6.04 per thousand. These approximate death-rates cannot be taken as conclusive, still, they throw a little light upon our question, and suggest that the death-rate of children out of school is slightly lower than that of children in school. They throw no light whatever on the death-rate of persons between 15 and 20 years, which probably includes a relatively large proportion of the girls who suffer from overpressure, if such exists. Sufficient data for computing the approximate death-rate of this class of persons in the city or in the schools cannot be had at present.

<sup>1</sup> Read before the Boston Society for Medical Improvement, Dec. 16, 1901.

It does not appear that Boston's general and special death-rates compare very favorably with those of other great cities at home or abroad, though our general death-rate is lower than it was. Thus, the mortality per thousand inhabitants of all ages in Boston was 20.8 in 1900, against an average rate of 23.3 in the decade 1881 to 1890, in which decade Berlin had an average annual death-rate of 24.5, and London one of 19.1. In 1892 Boston and the London slums had identically the same death-rate, namely, 23.9.

The death-rate for the age period, 5 to 15, is of special significance, as it is the decade of human life in which children grow fastest and death-rates are lowest. Six years ago I had occasion to show that Boston's average annual death-rate for the period 1885 to 1890 per thousand among persons from 5 to 15, namely, 6.6, was high in comparison with the Berlin rate of 4.8 and the London rate of 3.9 for the same 5 years. How it compares with such rates in London and Berlin today, I cannot say, but we may note with satisfaction that in Boston the death-rate for the year 1900 among persons 5 to 15 years of age, namely, 5.4, was 1.2 per thousand less than the average for the years 1885 to 1890.

The death-rates of Boston school girls compare quite favorably with those of Boston school boys, as might be expected on general principles; but lack of time forbids my entering into any argument on the question in this connection. It is the fashion to disparage and criticize the public school system here and elsewhere, but those who aver that public school pupils are heavily and dangerously overburdened have not produced convincing evidence that it is so. In my opinion, neither the critics nor the defenders of the schools are in a position to enlighten the public on the matter, for the simple reason that no adequate investigation of the facts has been attempted hitherto.

So far as I can learn, the only states in which thoroughgoing scientific investigations of the effects of school life upon the school population have been made are Sweden and Denmark. The reports of the Swedish and Danish commissions, made more than ten years since, are most instructive, and abound in statistical tables. We have nothing to compare with them, and are not likely to have unless the medical profession shall bestir itself in ways it has not attempted as yet.

I have not been able to ascertain much that is new in reply to the question "How many girls leave the Boston public schools in the course of a year?" Many boys and girls do leave, but the reasons for their leaving (the number reported as going to work being left out of the account) cannot be stated accurately. In the *Monthly Bulletin of Statistics*, published by my department, there is a table which shows by classes of school, namely, high schools, grammar schools, etc., and by sex the total number of pupils belonging at the end of each month. Another table shows the number of employment certificates

given to persons of school age by the school committee from month to month.

The school year begins in September and ends in June. I have made a table showing the number of boys and girls belonging at the end of the several months of the school year, from September, 1899, to June, 1901, 20 months in all — 10 for the year 1899-1900, and 10 for the year 1900-1901. In each year the maximum number of girls in all schools fell in November, the third month, and the least number fell in June, the tenth or last month. The difference between maximum and minimum, which we may term "loss," amounted to 4.8% of the maximum in the first year, and to 5.1% in the second.

As regards all boys, their maximum was reached in November of the first, and October of the second, year, and their minimum fell in June in both years; the loss amounted to 4.9% of the maximum in the first year and 4.6% in the second. In the first year the loss among boys and girls was practically the same; in the second year that of girls was slightly greater, namely, one-half of 1%. This does not suggest that girls as a class suffered overmuch.

As to the several classes of schools, the facts may be stated as follows:

(1) Kindergartens: Maximum enrollment in April, minimum in September, in both years, for girls and boys alike; difference between maximum and minimum, or loss, equalled 13.1% of the maximum in the first, and 13.9 in the second, year, for girls, against 11.9% the first, and 13.4 the second, year, for boys.

(2) Primary schools: Maximum in January, minimum in September, for girls and boys alike, in the first year; second year, maximum in January, minimum in September, for girls, and for boys maximum in April, minimum in September; the loss equalled 4.8% of the maximum in the first, and 3.5 in the second, year, for girls, against 5.4% in the first, and 3.6 in the second, for boys.

(3) Grammar schools: For girls, maximum in October, minimum in June, first year; maximum in November, minimum in June, second year; for boys, maximum in October, minimum in June, first year; second year, maximum in January, minimum in June; the loss was 5.9% of the maximum in the first, and 5.7 the second, year, for girls, against 6.7 in the first, and 6.3 in the second, year, for boys.

(4) High and Latin schools: For boys and girls alike in both years the maximum enrollment fell in September and the minimum in June; the difference between the maximum and minimum equalled 20.1% of the maximum in the first, and 20.9 in the second, for girls, against 20.5 in the first, and 19.8 in the second, for boys.

(5) Normal school: Pupils all females, and mostly young women over 19, the maximum enrollment was in September and minimum in June in both years; the loss amounted to 28.8% of the maximum in the first, and 42.9 in the second, year. The increase of loss in the second year is explicable on the ground that the requirements for en-

trance and continuance in the school had been raised.

The proportional losses do not vary widely in the two years under review, and the figures I have given do not justify the supposition that a disproportionate number of girls are obliged to leave the Boston public schools because of impaired health. Excepting the normal school, which should be regarded as a technical or professional school, the largest annual losses, in any class of schools, are found in the high and Latin schools. There the losses are considerably larger than in the lower schools. If overpressure exists, they are the schools in which we should expect to find evidences of it.

If any class of public schools need to be investigated with a view to determining the effects of school life upon the health of girls or boys, that class is the class of high schools.

I venture to say that the medical profession is fully as responsible as the educational authorities for the present neglect of school hygiene and the undeveloped state of vital statistics relating to the school population. At the same time, the physicians are somewhat more fully alive than the teachers to the needs of the situation.

#### THE EFFECT OF PUBLIC SCHOOL EDUCATION UPON THE HEALTH OF THE COLLEGE GIRL.<sup>1</sup>

BY JANE KELLY SABINE, M.D., BOSTON.

THOSE who have preceded me in this discussion have pointed out the dangers to the health of growing girls in our public school education.

We are now to consider the effect upon the college girl. She enters with the same neurotic tendencies that she acquired in school life. These may progress to such an extent that they culminate in a breakdown. On careful questioning by the physician it will be found that the foundation of ill health was laid, in the majority of cases, during the age of puberty. Another may, by rigidly conforming to the rules of health, maintain such an equilibrium of her forces, that she leaves the institution in much the same physical condition as when she entered. Still a third, who starts with delicate health, will gain during the added years of study, and go out into the world a stronger, more robust woman.

A medical adviser today who makes a physical examination of girls, when they come to college, broadly divides them into two groups — athletic and non-athletic.

It is ten years since Dr. Sargent had modeled a statue representing the typical American student — the 50% class. Were he to have one made of the same percental grade now, the proportions would have to be changed. The type would be better because of the influence of gymnastics and athletics in the lower schools. Bicycling, golf, and increased interest in all out-of-door sports

<sup>1</sup> Read before the Boston Society for Medical Improvement, Dec. 16, 1901.

have also done much to raise the standard. Nevertheless, the faults of the American type would still be marked, namely, flat chest, hollow back and prominent abdomen.

Observation of 2,000 students in finishing schools and college, gave the following tabulated results: Thirty per cent. were either wearing glasses or ordered to have their eyes examined by a specialist; 6% showed defective hearing; 4% had flat-foot; 5% had weak lungs; 4% had heart trouble; 2% had kidney lesions. Menstrual difficulties were the most marked: 75% were found with irregularities dating from puberty; 60% had to give up from one-half to two days, and 90% had leucorrhea. Of those whose records were kept of four yearly examinations (up to the beginning of the senior year), 30% showed marked improvement, 30% were not influenced either way, while 40% were not improved.

Since these defects date to the time when menstruation first takes place, when habit neuroses are most easily formed, when morbid sensitiveness keeps the girl at work in school, the reconstruction in her education must be made in the preparatory schools. For whatever position in life she is to occupy she needs good sound health. Education at the expense of health is worthless. A sound mind in a sound body is a priceless possession. The college girl should represent that type.

#### Clinical Department.

##### MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

REGULAR meeting, Dec. 20, 1901, Dr. C. B. PORTER in the chair.

DR. H. F. VICKERY reported the following case:

ATELECTASIS OF THE RIGHT LUNG, DUE TO A FOREIGN BODY IN THE RIGHT PRIMARY BRONCHUS.

A boy, age six, had a bean in his mouth when he was knocked down by a companion, and the bean was drawn into the trachea. He was admitted on the surgical side, under Dr. Harrington's care, and Dr. Harrington very kindly invited me to examine the boy. I saw him on July 5, the day after the accident. At that time the right chest was decidedly smaller than the left, and the heart drawn over toward the right side; relative dullness existed in the right lung, and respiration was nearly absent. What respiratory sound there was was of a harsh bronchovesicular character. If we had not been sure from the report of Dr. Lord, my chief house officer, that the day before the conditions had been different on that side, it would have seemed possible that the lung was in a chronic state of collapse. I agreed with Dr. Harrington as to the advisability of trying to get the bean from the right primary

bronchus. I have examined the boy tonight, and one lung is exactly as good as the other.

DR. F. B. HARRINGTON: This boy has come out of a condition which we recognize as an extremely dangerous one, and that is due to a method I think devised by Dr. Coolidge, certainly practised by him in one or two cases, by which it is possible to remove a foreign body from a bronchus. The boy was given some ether and the trachea opened; then this urethroscope was passed down into the trachea, and with a reflector it was possible to see the bean. It was down beyond the bifurcation, and the bean apparently filled up the entire bronchus. The bean which was removed has disappeared, but here are some beans which resemble it very much. Here is a moistened one, and this is the condition in which the original bean was when taken out. It was not difficult to accomplish, although I had to make several attempts. Before the removal of the obstruction the chest on that side was much flattened, the bean allowing air to escape on coughing, but preventing its return on inspiration. The chest on that side appeared like a chronic deformity, but this deformity disappeared at once on a removal of the obstruction.

DR. VICKERY also reported a case of

#### POSSIBLE GASTRIC CANCER.

The next patient I would like to speak about is a man, forty-five years old, who for four years before entrance had been cutting rubber. His family history is good, and his habits are fairly good. His previous health had been such that he had never lost a day's work up to his present illness. He had suffered from indigestion occasionally for fifteen years; within the last year there had been constipation and gradual loss of weight. There had been no loss of blood. His best weight having been 172 lbs., he weighed 125 lbs. a week before entrance. Ten days before entrance he had been nearly overcome by the heat, and had drunk excessively of ice water, and from that time his digestive symptoms had become aggravated. For five days before entrance he had vomited almost everything that he had eaten. Upon entrance he was almost moribund, and unable to receive nourishment. One could just feel his liver and spleen; he had a white count of 12,800. His stomach showed stagnation of the gastric contents, it held 76 oz., and secreted no hydrochloric acid; there was lactic acid present. I think he would have died except for rectal enemata and infusions of salt solution. After several days of daily infusions of between one and two pints each day underneath the skin he gradually improved, so that I thought he might be able to endure an operation, and asked Dr. Harrington to see him in consultation. I ought to add that we felt a mass in the right epigastrium, which we supposed to be cancerous. Dr. Harrington agreed that an operation was advisable.

After his operation the man went to the

Convalescent Home at Waverley weighing 117 lbs. He now weighs 136½ lbs. I saw him again at the end of October. He looks really better today than at that time. There is still something to be felt here. There are glands in the neck and at the elbows.

Examination made Dec. 27: Six hours after an ordinary meal, the stomach was empty, the wash water returning clear, except for a very little coarse granular material. There was no blood nor mucus. The odor was slightly sour. The capacity was 60 oz. One hour after an Ewald test breakfast, there was 1 oz. of expressed contents of a sour odor, slightly acid and showing a little mucus, and much granular matter (bread). There was no lactic acid and no hydrochloric acid, either free or combined; the total acidity was .15.

DR. F. B. HARRINGTON: The operation was a gastro-enterostomy. The jejunum was attached to the posterior wall of the stomach by a double row of silk. He bore the operation well, and on the second day took a little water. He had nothing in the way of nourishment until the ninth day except the rectal feeding. He went to Waverley in two weeks. On opening the abdomen I found a tumor the size of a good-sized lemon near the pylorus. The omentum was studded with masses which appeared like a cancerous growth, and the transverse colon was studded with small masses apparently secondary to pyloric growth. If the disease were not cancer, I am sure I do not know what it was. The man's condition, as you can see, is remarkably good. There is a mass to be felt near the pyloric end of the stomach. I did not remove any of the glands. The man's condition was such that I did not feel justified in even removing enough for diagnostic purposes.

DR. VICKERY also reported a case of

#### PERNICIOUS ANEMIA WITH ALBUMOSE.

This patient, age 47, came to me in private and complained that for a year he had lost strength and that his friends told him he was pale. There was a "pumping" in the left side of his head and he easily got short of breath. The "pumping" was due to anemia and a feeble, dilated heart. The first time I saw him I tested his urine and found albumose. With nitric acid I got a very thick precipitate, and then I took some of the urine and boiled it, thinking I was going to see the contents of the test tube solidify, but as soon as it boiled very hard I only had a trace of albumin; at first I could not think what it was I had. It becomes cloudy very quickly, rather sooner than ordinary albumin, and on further heating becomes almost transparent. In this case there is some albumin along with the albumose. So far as the diagnosis of the case goes, probably it was a pernicious anemia. The blood had many of the characteristics of that. There was an excess of lymphocytes and a good many rather large red cells and there was no leucocytosis. The count was always pretty near a million and the man



looked like a case of pernicious anemia. There was no evidence of any bone disease. He had retinal hemorrhages. The x-ray showed a dilated heart.

DR. WALTON spoke on

#### THE BABINSKI AND SCAPULAR REFLEXES.

This case offers a good illustration of the importance of care in testing for the Babinski reflex. The patient has a typical hemiplegia of the right side. A quick stroke on the sole produces no definite result when a blunt object (knife handle) is used; even when a pointed stick is used with a quick, light stroke the only response is flexion of the small toes, and either no movement of the great toe, or a mere suggestion of extension. But when I draw the well-sharpened end of an orange stick slowly forward the entire length of the sole, using a fair degree of pressure, the great toe becomes more and more extended until, at the end of the stroke, it stands almost at a right angle with the other toes. This is the complete Babinski reflex, which, with very rare exceptions, points to organic disease of the pyramidal tract. The reflex is best brought out in this, as in most cases, by making the stroke along the outer edge of the sole. It also appears in marked degree when the stroke is made over the ball of the sole at the base of the great toe itself. In some cases the latter stroke alone brings the reflex out satisfactorily.

The scapular reflex is not yet established as an important diagnostic aid, nor have we yet become familiar with its technique or its significance. This reflex consists in contraction of the deltoid, particularly its posterior bundle, on striking the edge of the scapula with the percussion hammer. It is supposed to be best elicited by a blow upon the inner lower edge of the scapula, the arms, meantime, hanging loosely forward. In this case of hemiplegia the reflex is so active on the paralyzed side that a tap on the surface of the scapula at the root of its spine causes an active elevation of the arm. The reflex is also produced by a tap of the inner edge of the scapula, but less actively. I have often noticed this peculiarity of the reflex, and am not yet quite satisfied that it is essential to make the blow at the edge instead of the surface of the scapula. It is to be hoped that the surface blow will prove equally efficacious, for it is certainly more convenient, especially in stout persons. The reflex is also active, but less so, on the unparalyzed side, just as the knee jerk is exaggerated on the unparalyzed, though less so than on the paralyzed side. The scapular reflex is said to be practically always present in a certain degree in health, its absence pointing to relaxed condition of the parts, but I have not yet been able to satisfy myself of these facts. Its exaggeration, however, like that of all the upper extremity reflexes, has proved of value in spinal cases as indicating lesion of the pyramidal tract such as is present in amyotrophic lateral sclerosis. This is illustrated in this young man with atrophy of shoulder group muscles.

DR. WALTON also presented a case of

#### MYOKYMIA.

The third case may be regarded perhaps rather as a medical curiosity, but its study has a very practical bearing on the prognosis of fibrillary twitching. This man has had persistent muscular quivering for the past five years, without atrophy or loss of power. The calf muscles are most affected, but muscles in practically all parts of the body are subject to the quivering, which is identical with that of progressive muscular atrophy. There is no wasting, and the patient, as you see, can stand on heels and toes, and make every movement perfectly.

There is tendency to prolonged contraction on the application of both faradic and galvanic current, which removes the case from the psychoses. This condition has been named myokymia (from the Greek, "a wave") and has been known to persist unchanged for twenty years, and again to disappear gradually. It has followed poliomyelitis, lead poisoning and sciatica, but in this case its appearance was spontaneous. The condition is not to be confounded with paramyoclonus multiplex, in which the spasms are bilateral, symmetrical, and involve whole muscles, more particularly those connected at one or both ends with the trunk. It has nothing in common with the electric chorea of Dubini, an endemic, generally fatal disease, or with the fibrillary chorea of Morvan, a disease of childhood and early life accompanied by constitutional symptoms. Temporary quivering of this character is not uncommon in health, and those cases of myokymia show that even when persistent it is not necessarily in itself of grave import.

DR. H. H. A. BEACH reported a case of

#### GIANT-CELLED SARCOMA OF LOWER JAW.

I present this case simply to show what little deformity may follow some operations of the lower jaw. A boy thirteen years old, while playing football one and a half years previous to entrance, received a kick upon the jaw. Entered the hospital Oct. 11 with a purplish mass the size of a hen's egg extending from the first molar tooth on the right to the first bicuspid on the left side. A specimen excised under cocaine was pronounced by Dr. Wright to be giant-cell sarcoma.

*Operation, Oct. 12.*—Patient etherized. Placed in the sitting position. Lip incised in the median line and dissected off jaw on either side. Section of the jaw, just in front of angle on right and half-way to angle on left. The mass was dissected out and the mucous membrane closed. He was discharged Oct. 27, after an uneventful convalescence, with a small sinus, which soon closed. Upon close inspection, only the line of incision can be seen. The space left in front by the excision is closed by the approximation of the remaining bone, which makes a symmetrical chin and permits easy mastication.

The next case is one of general peritonitis with *streptococcus* infection. The boy is unable to be

moved to this room, but I will present his interesting chart. He was out skating on Wednesday afternoon. Upon that night pain began in the epigastric region, which became localized in the right iliac region. Abdomen was distended. On Saturday he entered with a temperature of 100.8° F., pulse 160, respiration 50, and dulness in right iliac region. Quickly prepared for operation. Laparotomy. Abscess found in the appendix region and pus as high as the stomach. Intestines deeply congested and exhibiting flakes of lymph. Cultures taken found to be numerous colonies of *streptococci*. Careful washing with large amount of salt solution; abundant drainage. His condition was critical for ten days after the operation, with high pulse and temperatures. Both have gradually lessened to the present time, when he is convalescent. At the present time he is walking about.

DR. BEACH also reported a case of

#### RENAL CALCULUS.

The patient a woman of 49 years, married. For five years she had suffered from frequent attacks of intense pain in the right lumbar region, radiating to the umbilicus and down the right leg, requiring morphia and chloroform. On one occasion passed blood and a stone (the size of a bean) in the urine. There was a mass to be felt in the right side, firmer than the kidney of the other side. It was somewhat tender upon deep pressure and was the seat of the pain described. An x-ray examination was made, and the plate shows fairly well the spinal column, ribs, crest of the ilium, and on the right side a few shadows that suggest the presence of calculi. The urine collected by the Harris segregator showed that the right kidney secreted only one-third as much urine as the left. Both specimens contained a very slight trace of albumin and some pus, but the urine from the right kidney contained a greater quantity of pus than that from the left.

*Operation, Nov. 21.*—Incision four inches long in the right loin down to the kidney, which appeared small and gave a grating sensation on palpation. Incision into a fluctuating spot on the surface disclosed a pocket containing two white, oblong-shaped stones, the long diameter of which was an inch and a quarter, and two ounces of pus. Further exploration discovered two other stones of similar size and some smaller fragments. The sound was then passed through the ureter to the bladder, showing that the ureter was clearly open. The wound was washed with salt solution, packed with gauze and partly closed. Recovery uneventful. All wicks out on the fifth day. The wound has healed, all but this small granulating surface, and no urine now comes through the lumbar wound. The quantity passed varied between 35 and 48 oz. after the week following operation. On Dec. 3 analysis showed a considerable quantity of pus, which by the 20th had become minute in quantity—the specimen containing only a trace of albumin.

DR. C. A. PORTER showed and reported a case of

PISTOL SHOT WOUND IN STOMACH, INTESTINES AND MESENTERY IN BOY, SUFFERING FROM TABES MESENTERICA. OPERATION; COMPLETE RECOVERY, COMPLICATED BY PNEUMONIA, EMPYEMIA, AND A SEVERE BURN.

Jacob White, colored, age six, was brought to the accident room on Nov. 22, 1901, with a history of having been shot in the belly, just above the navel, with a 32-calibre revolver, at a distance of a foot. He had eaten five hours previously, and vomited portions of this food immediately after the accident. There was no blood. On admission he suffered from considerable shock; the temperature in spite of this was 103.8°, pulse 164, respiration 38. This examination was made two and one-half hours after the accident. At this time he vomited a small amount of greenish fluid, unstained by blood. The pain, which at first had been moderate in amount, at the time of the examination was agonizing, referring to the epigastrium and abdomen. He was very restless, with knees drawn up, tip of nose cold, respiration shallow and thoracic, with grunting expiration. Heart normal, apex in fourth left interspace, mammillary line. Lungs normal, except for dulness and diminished respiratory sounds in left lower back. The abdomen was moderately distended, rigid, tympanitic, except in left loin, where there was a distinct dulness over an area the size of the palm of one's hand. Liver dulness was present. Tenderness most marked in umbilical and epigastric region, less marked in other parts of the abdomen. Just above, and to the left of the navel, was a ragged hole filled with powder grains. From it a small piece of omentum protruded. There was no wound of exit. The urine was normal. Under ether, the following operation was done four and one-half hours after the accident. The projecting piece of omentum was cleaned and cut off. A six-inch incision was made through the left rectus muscle, including the bullet wound. On opening the abdominal cavity, no gas escaped, the intestines were found moderately distended, and showed everywhere marked injection of the lacteals, evidence that intestinal digestion was not complete. In the left flank, under the dull area, a pint and a half of clotted blood was evacuated. The whole abdominal cavity was thoroughly flushed with saline solution, and a systematic examination of the intestines for perforations followed. In brief, two wounds were found about the middle of the ileum, situated half an inch from the mesenteric attachment. These were partially occluded by pouting, blood-stained mucous membrane. Three feet from the duodenum, another pair of perforations were found. There were three perforations of the mesentery, which was full of tuberculous glands, varying in size from an English walnut to a pea. One of these glands had been lacerated and cheesy pus exuded. Two perforations of the stomach existed, the anterior about two inches

from the greater curvature in the median line. The wound of exit on the posterior wall was directly opposite, immediately evident on opening the lesser peritoneal cavity, between the stomach and transverse colon. This cavity contained some clotted blood, but no stomach contents. All of the intestinal and stomach wounds were sutured with interrupted Lambert stitches. The wounded tuberculous glands were sponged with peroxide of hydrogen, and several bruised areas on the colon and in small intestine were wiped dry. After another thorough flushing with saline solution, a wick was placed behind the stomach, and the abdominal incision rapidly closed. The whole operation was completed in forty-five minutes.

To one who was watching the convalescence, its stormy course was really of great interest. I will speak, however, of only a few points which rose during it. For several days the boy did well under rectal feeding, and small doses of brandy and bicarbonate of soda solution by mouth. On the fourth day liquids were taken regularly by mouth, and the enemata stopped. It was thought at the time of operation, from the dulness in the left base, that the bullet had probably penetrated the diaphragm. This seemed more likely, as consolidation soon spread, and involved the whole left base, with fever, rapid respiration and high pulse. This proved, however, not to be the case, and it was found three weeks afterwards that the bullet, instead of lodging in the lung, had passed downwards and to the left, as was shown by an x-ray, and was situated close to the left sacroiliac synchondrosis. The pneumonia spread from the left base to the left apex, involving at one time the whole lung. This gradually cleared up, with a small amount of fluid at the base. The abdominal wound did well, wicks were not touched for two weeks, and there was at no time any evidence of intestinal leakage. At the end of three weeks, before the x-ray had been taken, bacteriological examination of the boy's sputum, of pus procured by aspiration of the empyema, pus procured from the abdominal wick, gave us relatively sure evidence that the abdominal wound did not communicate with the lung.

Dr. Smith examined the sputum, and found it loaded with pneumococci, without streptococci. Examination of the empyema pus showed the same organism, whereas examination of the pus from the abdominal wound showed an absence of pneumococci and numerous streptococci. During these three weeks the boy's high fever curve and general bad condition were undoubtedly complicated by a serious hot water burn on the left wrist, from which there was a profuse discharge of pus, the slough, on separating, leaving the tendons bare.

In addition there developed, four weeks after his operation, a tendon mass in the left iliac region, to be felt by rectum as well as abdominal examination, accompanied by high fever, a white count of 44,000, and symptoms of intestinal obstruction. Visible peristalsis, distention, diarrhea, alternating with constipation. The question

of operation upon this mass arose, as the boy's condition seemed absolutely desperate. He had wasted to skin and bones, refused nourishment, and Dr. Shattuck, who saw him in consultation with me, thought that he would not live more than two days, and advised strongly against any operative interference. To this wise advice I think the boy's ultimate recovery was due, for he soon picked up under cod liver oil inunctions, naked sun baths, the temperature, pulse, etc., gradually improved, and the mass disappeared, without at any time showing evidence of having discharged itself into the intestine.

On Jan. 13, seven weeks after operation, the boy was very well, and about in a wheeled chair. On Feb. 24, three months after operation, he was discharged, the wound entirely healed, no evidence of intestinal obstruction, only a slight, not tender, mass near the left pelvic brim, the wrist burn soundly healed, the lungs normal, except in thickening of the pleura at the left base. There was a slight bulging of the somewhat stretched scar.

In short, it seems in résumé, as if all the intestinal and stomach wounds healed soundly. The boy developed a pneumonia which had nothing to do with the wound, and from which there resulted a small empyema. The bullet probably caused an abscess near the left pelvic brim, which caused the distention and intestinal obstruction. This abscess gradually was absorbed, without discharging its contents. Whether there developed in addition any tuberculous infection, from the injured glands, cannot be stated. His present condition you can see. He is perfectly well, except for an occasional slight cough, and goes to school and plays with the other boys.

DR. J. C. WARREN spoke upon

#### REMOVAL OF COINS FROM BRONCHI.

The case reported by Dr. Harrington suggests to my mind a case I had in my service last winter which showed this method of removing a foreign body from the right primary bronchus, devised, I think, by Dr. Coolidge, to be superior to anything for that purpose. The case that brought the idea to my notice was a man juggling with a ten-cent piece and he breathed it down into his lung. He was operated upon in another city by tracheotomy low down, and an unsuccessful attempt was made to reach the coin. The next day he was sent to the hospital; condition good; he was a strong man. I asked Dr. Coolidge to see the case with me. I was thinking over Bryant's operation, which consists in an incision through the ribs behind near the spinal column, pushing the aorta aside and making an incision into the right primary bronchus, to reach the foreign body. I do not know that this has been tried on the living subject. Dr. Coolidge thought, basing his experience on a case in the Out-Patient Department, that he could remove this coin. The man was very cool. Dr. Coolidge asked him to lie down with the head hanging over and on one side. The urethroscope was inserted and the man did not cough, the alli-

gator forceps was introduced, and coin seized, and coin and speculum drawn out together, and the man's life to me seemed to be saved, because we know how fatal those cases are if the foreign body is not dislodged from the right primary bronchus.

This last week I had a child with a five-cent piece in the esophagus. The x-ray shows it very well, shows it conclusively to be there a little to the left of the sternum. It shows clearly it was in the esophagus and not in the trachea. I suggested to Dr. Coolidge taking the urethroscope and passing it down through the mouth with the child anesthetized, the child being in the horizontal position, passing it down and taking the coin out with the forceps, but Dr. Coolidge found, when he got it parallel with the axis of the esophagus, that the mouth of the speculum dropped behind the front teeth. I therefore performed esophagotomy.

DR. WARREN also reported a case entitled

EXCISION OF THE RECTUM FOR CANCER.

The next case is a case of excision of the rectum for cancer (Kraske's operation). I have had a number of these cases in the last eighteen months, and tried different ways of treating them. The present case came in with a rectal cancer just over the prostate gland. He had this peculiarity, that he had an enormous number of little adenomatous growths over the rectum just beyond the reach of the finger. His age was 37. Disease had lasted not more than a year. Being a man of that age I felt that it was probably a very malignant type of the disease and important to do as radical an operation as we possibly could; therefore a colostomy was done in the left groin some weeks previous to the operation, the bowel cut, brought out, the proximal end stitched to the tube and the distal end sewed up and dropped in. When the artificial anus was thoroughly established and the rectum thoroughly rested and cleaned I did the ordinary Kraske operation. I decided not to try to resect a portion of the rectum, although that is a much more esthetic operation in point of view of the result, yet it does not seem to me to be sufficiently radical for a disease of this malignancy, and I therefore did the Kraske, including the anus, sphincter, etc. I removed several inches of the bowel with its perirectal tissue, after having resected the coccyx and a portion of the sacrum, and excised it and laid it aside, and I then inspected the upper portion of the bowel and found the adenomatous growth still reaching beyond the tip of my finger, and Dr. Harrington and others thought it would be wise to try to remove some more of the bowel. I separated the cylinder of mucous membrane from the perirectal tissue and found I could pull out the membrane indefinitely, and I must have taken out twelve or fourteen inches of the bowel above the rectum, leaving behind the perirectal tissue. The patient has a truss on his artificial anus. (Patient and specimen shown.)

I have tried several ways of doing this operation. I performed two Kraskes about fourteen

months ago. They have some difficulty in retaining the feces. I think you can manage the Kraske with a little experience so as not to make too large an opening. If you make too large an opening you get sometimes a great pouting mouth with a little hernia, and the patients find it hard to control the movements of the bowel. If you have a small opening the patients probably get a much better control.

DR. HARRINGTON: The operation which Dr. Warren has done in this case I feel is preferable in many cases to the Kraske operation. The man has not worn this truss very long, and probably the opening is larger now than it will be six months hence, and his familiarity with the use of the truss will improve. It is not possible to put a truss on the Kraske opening as you can on the inguinal opening. If you make your opening for an inguinal colotomy as you make a McBurney incision for an appendix operation, the amount of muscular control is considerable.

DR. WARREN: I think it is an interesting question to decide whether one should attempt the double operation or the single operation. I was called two weeks ago to do a Kraske, and thought I would not bother about the double operation, and found I got out quite as much as I wanted to, and the patient has done perfectly well since. It might not be the case always. He certainly has done as well as this patient. It depends on the patient's power of resistance, accidental circumstances, etc. I do not feel fully convinced that an anterior anus is better than a posterior, although it may be more easily controlled. Of course the posterior anus cannot be held by a truss.

DR. COOLIDGE: It is very easy, if you have a large enough opening into the trachea, to put a short, straight tube into it, and to see the bifurcation and the whole of the right bronchus and a good deal of the left; and when you have seen the foreign body through the tube, getting it out is a simple matter if you have the proper instruments. A further advance in this subject will be made when we can put tubes down through the mouth into the trachea. This has been done more than once in Killian's clinic in Berlin. In the case Dr. Warren reported, in which I did not manage to get the foreign body out of the esophagus until esophagotomy had been done, I feel sure I could have done it with proper instruments. The tube was too short. With a tube of the right size I think without question that many foreign bodies in the esophagus can be got out through the mouth. In the case of foreign bodies in the bronchi it is not so easy, but with good manipulation and proper instruments a certain proportion of them can be got out without previous tracheotomy.

(To be continued.)

THE *Philadelphia Medical Journal* is authority for the statement that Duke Carl Theodore, of Bavaria, a specialist in diseases of the eye, has done his four thousandth cataract operation.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, M.D., SECRETARY.

REGULAR meeting Dec. 16, 1901, Dr. E. H. BRADFORD in the chair.

DR. BRADFORD: It is one of the functions of our society to take up occasionally subjects of general interest and consider them from a medical point of view. Tonight one of the phases of the subject of education is before us. We physicians look upon schools as physiologically wrong in so far as they deprive the child of the freedom and activity necessary for normal development. Of course we recognize that the evil is necessary in order to gain the good. All that can be asked is that the cost of education in wear and tear, in nervous breakdown, be fully considered and that this be made as small as possible.

DR. E. G. BRACKETT read a paper on  
THE SCHOOL IN ITS EFFECT UPON THE HEALTH OF GIRLS.<sup>1</sup>

DR. ROBERT W. LOVETT read a paper entitled  
THE HEALTH OF SCHOOL GIRLS.<sup>2</sup>

DR. E. M. HARTWELL gave  
STATISTICS REGARDING HEALTH OF SCHOOL GIRLS.<sup>3</sup>

DR. JANE KELLY SABINE read a paper entitled  
THE EFFECT OF PUBLIC SCHOOL EDUCATION UPON  
THE HEALTH OF THE COLLEGE GIRL.<sup>4</sup>

DR. E. W. TAYLOR: I must say at the outset that my personal experience with the public school system, and my experience clinically with patients who possibly have been the victims of the system, is very small. I must therefore speak largely theoretically of the general subject.

A matter which it seems to me must be apparent, apart from those which have been mentioned by the various speakers, is the very great difficulty in the proper classification of students in the public schools, particularly where a large number are brought together under the same general conditions. Any of us who have any experience in teaching pupils of whatsoever age are impressed with the fact of the different capacities of those students. One or two we may immediately recognize as of superior mental abilities, others of extremely inferior mental powers, still others as having the average ability. The teacher either directs attention to the best or worst or attempts to meet the average. The public school teacher must have this difficulty to meet in the problems which are brought to bear in his or her work. Apparently there is small danger for the middle class which one must meet in the schools, the girls about whom we are speaking who are fairly well,

fairly bright, and get along with studies without overanxiety. There is danger, it seems to me, for the overbright pupils and especially for the over-dull.

These latter students, who are likely to be as conscientious as their more endowed fellows, are very apt to feel very sharply the slights brought upon them on account of their manifest inferiority in studies, and this engenders conditions important in their later development. I think all of us have been very much impressed with Dr. Prince's work on what he calls the association neuroses, a term which I believe is going to replace the much misused term of neurasthenia in many instances. Dr. Prince feels that undoubtedly from small beginnings very grave neuroses ultimately arise, and in my own experience I could cite many cases in which I feel sure that serious neuroses, or neuroses at least of great annoyance, were engendered in very simple ways, started, as we might easily imagine, in the public schools through slights, feelings engendered possibly by the superiority of their fellows, which lead to more and more disturbance of mental poise, until many years afterwards a culmination comes and the person finds herself the victim of her circumstances and more or less a physical and mental wreck. That course of events I have seen repeatedly; the analysis of these conditions is always interesting and often it leads back to some slight cause, a cause which must frequently occur in this time of strain during the school life. This, then, is one of the dangers which I should like to emphasize, this danger of the building up of false associations ultimately resulting in neuroses which at first appear trivial but later assume a wholly unlooked-for importance.

About the possible remedies for the various nervous disorders which are likely to arise as a result of the school system, the first remedy unquestionably is an improved classification. To effect such a classification it seems to me there should be a more rigid inspection of schools than at present is possible. We have at present a very skilled inspection of the schools by physicians as to whether the children have diphtheria or other infectious diseases, and there I fear too often the inspection stops. What one would like to see established is a critical analysis of the capacities of children, not merely from the psychological point of view, but from the general medical point of view as well. A man skilled in the broad lines of medicine as well as psychological analysis should inspect the schools from time to time and assist in the proper classification of pupils. That I believe would prevent a great deal of the disturbance from association of children of different abilities, and it would single out many children who are not fit to be in the public schools, but who should rather be in institutions for the feeble minded. I should, therefore, like very much to see established a more definite attempt at the prophylaxis of various nervous disorders on scientific lines in the same sense that we have an attempt at prophylaxis of the infec-

<sup>1</sup> See page 375 of the Journal.

<sup>2</sup> See page 376 of the Journal.

<sup>3</sup> See page 378 of the Journal.

<sup>4</sup> See page 380 of the Journal.

tious diseases. That it seems to me, in a measure, at least possible to do.

DR. A. WORCESTER: I am glad to take part in any meeting where the health of the public school girl is under consideration, because I am one of those who believe that the school girl does not now have a fair show. From my point of view as a general practitioner, the public school girl is a little, romping, healthy creature through the primary and lower grammar grades, and then by the time she comes up into the upper grammar grades, and certainly by the time she enters the high school, that previously healthy little animal becomes a roundshouldered, thin, nervous, over-conscientious, distressingly unhealthy specimen of humanity. Of course I know that there are many exceptions, and still the type forces itself upon my mind. I had the chance to see the school girl from the teacher's desk for two years, between my college and medical school courses, and I remember even then being concerned for her; and twenty years ago I tried to persuade the school committee of my native city to let me study the actual physical condition of the school girls. They objected. I perhaps was too hasty in letting it be known that I had found in the schools children who were in the last stages of phthisis.

I have no statistics to offer, and my ideas regarding the cause of the difficulty, I fear, are too crude to be of any use. But I cannot help calling attention to the fact that the school girl at the time of puberty undergoes a marked development of conscience. I think all physicians who have tried to persuade sick and weakly school girls or their parents that the school course should be interrupted even temporarily have run up against that extreme conscientiousness of the little girl that drives her on in spite of backache and headache and every form of physical suffering. It is noteworthy that at the time of the girl's overdevelopment of conscience the boy is saved physically by a distinct lessening of whatever conscience he originally possessed. He is in no such danger of being overworked in the high school as the girl. He will slight his work for any form of physical amusement; baseball, football, skating and everything of that kind has prior claim upon the school boy; but there is no form of exercise so attractive as to tempt his overconscientious sister to neglect in the afternoon and evening the pile of books that she feels obliged to carry home in order to prepare her lessons. No wonder that the girls in the upper grammar grades stand higher than the boys. It is due to their more highly developed conscience. And this physiological difference between the boy and the girl is not recognized in the schools. It seems to me, with the public school as now arranged, almost impossible to save any delicate girl. If you suggest that the girl should drop one of her studies, that causes heartache and tribulation; and any suggestion that she should drop out of the ranks for a week or a month is met with the awful consequence in her mind of losing her place in her class. To her that is everlasting

disgrace, and that leads to her disguising from her parents and physician the extent of her physical suffering. The little girl will cry when finally the physician is summoned, simply through fear that she will be taken out of her class. I never knew a boy to cry because of any such fear. I wish I could formulate in words my feeling that there is frightful cruelty in the public schools in the competitive examinations, the rank list and in the tests that are applied to children, absolutely regardless of their physical condition at that time. I know later on, when the school girls come into the training school for nurses, where I have my best chance of studying the effects of studentship, it is often absolutely impossible for the woman to do herself any kind of credit at an examination held upon the first day of her menstruation. And before that function is fairly established, when it occurs perhaps only once in a few months, when it is attended by all sorts of trouble, mental and physical, it seems to me atrocious to think of little girls being forced to go through any competitive test at such times; and yet, in the public school, as it is carried on, I do not see any possible chance of arranging that an examination shall be held at other times or a second examination be given; the little girls would be unwilling that the matter should be known; they would rather lose their lives than be excused from examinations on that account.

So far as the unhygienic home conditions apply to the public school girl, that is always the teacher's defense when the fact is pointed out that public school girls wilt through the school nine months and only by extraordinary care can they be got into physical condition fit to enter the school in September. I cannot for the life of me see how that affects the question of the public school's effect. It is only by the gradual spread of better knowledge as regards general hygiene that the home conditions of the community can be improved. Perhaps we do not, as physicians, do our duty in extending that necessary knowledge. But the public school system seems to me especially within the range of well-directed, concerted medical influence. I cannot believe that the methods under which our girls are trained now in the public schools are really defended by any in the community. I know that the public school teachers themselves are distressed by the conditions which they have to meet. I know that the parents are generally dissatisfied and even angry with the effects of the public school system upon their children, and I believe that, if a crusade were started against the continued destruction of the health of our girls in the public schools, it would succeed. I believe that the public school system would be essentially modified. But physicians are not interested in the public schools in this community, in this commonwealth. A few years ago I addressed a postal card with reply to all the physicians of the commonwealth, asking particularly what offices they ever held, mentioning the school committee as one of the offices which we desired information about.



Only a handful of the physicians of Massachusetts held any position on the school committees of their different towns and cities. I do not know if it could be otherwise regulated by law; perhaps only by an awakened sense of duty on the part of the medical profession could the defect be remedied, but somehow it should be arranged that in every community there should be a physician upon the board of education. In order to bring this about the medical profession must take more interest in the public school question. I wish this subject, instead of being discussed in the Improvement Society, might be assigned for consideration at the meeting of the Massachusetts Medical Society. No subject seems to me more worthy, and if this meeting shall lead those present to a larger sense of the obligations resting upon us to do something in the matter, it will be very gratifying.

I have only this further to say: that there seems to have been on the part of educated women during later years, a marked resentment in their decided oppositions to the claim made by medical men that girls are entitled to special consideration at the time of their menstruation. But if now, as seems to be the case, the conditions are somewhat changed, and if, under the influence of our sisters in the profession, it has become possible to tackle the question more delicately than has been done in the past, and at the same time with the definite purpose of making the public school system conform to physiological facts, I think the happy time has come for moving in this direction.

DR. REYNOLDS: I did not have the advantage of hearing some of the earlier remarks this evening, but I have listened with a good deal of interest to the last two speakers. In the last twenty years it has happened that my friend, Dr. Worcester, and I have been led by our respective personalities to take opposite sides on many questions, and sometimes the trend of events has shown one to be right and sometimes the other; but I have grown to feel that when Dr. Worcester and I feel alike it strengthens my sense of the righteousness of my convictions. I have been interested in this subject during the last ten years, and have watched the women under my charge closely with regard to this point. The first thing one notes at the outset is that the educators say that the physician, and especially the gynecologist, sees only those who break down under education; that is true. But when the educator says that, he grants the whole position. Nobody claims that everyone breaks down in health. The question is, how many do so. Personally, I feel that there is quite a large percentage of women permanently the worse for their education as at present carried on. We have an opportunity of judging of it in two ways: in the first place, it has grown quite frequent of late, in practice, that mothers come to ask how they shall manage their daughters as they approach the time of puberty, and I have questioned them about what they noticed about the girl and instructed them what

to watch for. My experience has been that they often say that the girl flags during each menstrual period, that she seems at that time unable to do her work easily, and consequently works harder in order to get through the appointed task. And I have said to many a mother: "Never mind what the girl thinks about it. Keep her quiet the first day of her periods, before the habit is thoroughly established. Do not let her study at home during the menstrual period even if she drops back a little in the class." Mother after mother has told me that once the home studying time was forbidden during the menstrual period the girl seemed better.

Then we have another way of judging of it: Do the college bred women whom we see come in larger proportion than would be due from the proportion of college bred women in the community in general? I have no hesitation in saying they do. I see quite an undue proportion of college educated women and I see them almost always with one particular class of ailment. The community has grown accustomed to the painter's wristdrop, writer's cramp, baseball arm, golf elbow. I personally, as a gynecologist, am very familiar with a peculiar type of nervous dysmenorrhea — that is, an underdeveloped uterus, an obstructive dysmenorrhea, and a restless, unsettled nervous system. It is difficult to describe such a thing in words, but it is a very distinct type. Granting that for the moment, is it the result of the ordinary education of women, or of the higher education of women? Again, is it the result of the excessive conscientiousness of the growing girl, of the fact that she will work harder than she need to work; or the result of something in the educational system? My feeling about it is: the world has known for a great many generations that it could get more work out of itself in six days than in seven. The world has come to know that employees must be given two weeks' vacation out of the year; and we have grown to know, of recent years, that the brain worker can do very much more work in eleven than in twelve months out of the year. I believe, when we are a little bit more civilized, we shall know that as a pure matter of economics we can drive more work out of women in twenty-five days than we can in twenty-eight, and I believe that is the whole question.

DR. SARGENT: I have been exceedingly interested in the papers that have just been read, and I feel that enough subject matter has been presented for two or three evening discussions. I would like to confirm by practical experience the deductions of the two last speakers in regard to some of the remedies of this condition. I want to say that I had the first opportunity of anyone in this country of really learning the condition of our women in colleges, as the reports of something like ten thousand individuals came into my hands fifteen to twenty years ago, and if the medical practitioner could know the wretched condition represented by some of those women at that time, he would feel like rejoicing at the improvement

that has since been made. It is one of the gratifying things in connection with my work to note the improvement in the physical condition of women, but there is a great deal of improvement yet to be made. I have had an opportunity to observe also the condition of women in my normal school of physical training. Many of these teachers come to me having been advised by their physicians to give up school work and take up physical training instead. Many of these pupils have taken a common-sense view of the situation, and decided, if they must make a business of gymnastics for life, that they might as well make it pay. Very early in my experience I came across this overconscientiousness on the part of the women as compared with men, and that is one of the things I had to contend with. The woman who most needs physical training is the one most loath to take it. I have had teachers enter the course and been obliged to have them dismissed from their minds altogether any thought of mental examination on account of the overanxiety caused thereby, and it was surprising to see the improvement under those conditions. I also found that the best way to get the greatest amount of work out of women was to give them frequent intervals of rest, not necessarily three days out of every month, but frequent intervals during the day, interspersing the mental work with the physical work. I cannot think of anything I could say to this audience that has impressed me more than the duty of those who have women in charge in our schools to intersperse the periods of mental activity with more frequent periods of rest. It is not absolutely necessary to have a gymnasium. If the girls are even marched up and down stairs now and then it improves their condition. I think one of the greatest mistakes we are making as a community is through the overstriving after what we *term* an education. I maintain that just as much of mental discipline could be acquired, if not of knowledge attained, if but two-thirds of the time were devoted to the regular routine in schools. We should seek to impress upon the community the value of physical training from the mental point of view. Educators have too often lost sight of this point, for only four or five years ago I heard a prominent teacher, who had suddenly ascertained the fact that by improving the condition of the bodies of the children their minds could be improved, admit that that to him was a new fact.

MISS IRWIN: I came rather to learn from others than to say anything. I do see a great deal of young women and have seen a great deal of school girls, and my own decided impression is that a great deal of harm is done by the ignorance of parents and perhaps by the ignorance of teachers, but I think the main difficulty is always that the teachers and the parents do not quite get together and discuss the question as they should do when the girls are young and their habits of life are making. I say girls rather than boys, because I have had more to do with the young women in the community. With the girls whom I knew best I

found that periods of a few minutes were enough for little children; they could not fix their attention for a longer time; thirty to forty minutes were enough for the older ones; these shorter hours, with three minutes' recess between periods, and shorter school hours, really achieved as much as was achieved in other schools where the hours were much longer and much more occupation nominally through the thirty-five weeks of the school year. I think that will be the experience of anyone who has the courage to resist the demands of the parents, and sometimes the demands of the children, for rather more work. I think the difficulty is to believe that our young people can really do as much in six days as in seven. We all know it in theory, but very few of us recognize it in practice, and it is very difficult to believe that the twenty-five days for women will do more than the twenty-eight.

In our gymnasium of the 450 women in Radcliffe, many of whom are older women occupied with teaching and unwilling to do anything in the gymnasium, we have 225 who take gymnastic exercises, and who I think feel the benefit from it, and my impression is that their health has gained regularly and steadily and that they show it even to the casual observer.

DR. E. M. GREENE: It has been my experience for the last eight years to spend an hour every morning of the school week in looking over the sick members of some 2,000 school children. About one-half are girls whose age ranges from that of the kindergarten through the grammar school grades. Dr. Taylor said one thing that interested me in regard to medical inspection of schools, which was, that it ought to embrace other things than the discovery of contagious diseases. More than three-fourths of my work is concerned with the general health of children, advising them how to improve their physical condition and trying to ascertain their peculiar needs rather than determining whether they have scarlet fever or measles. The work of excluding children with contagious diseases is probably not so important as that of deciding such questions as which children have chronic nasal obstructions due to adenoids, and who have anemia and chronic indigestion from poor food or bad habits. I spend a great deal of time in giving instruction in regard to such matters. In the kindergarten, inspectors sometimes give instruction to the mothers of the children in regard to foods, habits, clothing, exercise and sleep.

Looking at these children I am impressed with what a very large amount of defective material the schools have to work on from the very start. My schools have to do largely with children from one of the poorer quarters of the city, the West End. The fathers are sometimes drinking men and the mothers ignorant of cooking, dressing and caring for the children. Under these circumstances, among children with chronic nasal discharges, enlarged glands, and generally lacking in vigor as they develop, quite a large number are bound to break down even under the best school

régime. The only way to save them is to take them out of the city and keep them in the open air and under careful medical supervision, which parents are unable to afford. The question is how much of the breakdown is really due to compulsory school work. It seems to me, in following these children along, as I have followed many of them, from the age of four to that of thirteen or fourteen years, that the pupils in the higher classes of the grammar school are on the whole a pretty healthy lot compared with those below, and that most of their defects can be accounted for by their home life. One bad feature of the latter is irregular hours of sleep. The children sit up until they are so tired that they have to go to bed. These children go to many evening entertainments, the girls take music lessons, and some are taking dancing lessons.

A good many children who are ill or defective in one way or another I advise to stay in school, because it is really better there than at home, so that it is the best thing they can do, and if they break down in health it is not the fault of the school.

In the grammar schools it is difficult to get a teacher to say she is overworking the girls. There are a few things, however, by which we can judge for ourselves. In one room the teacher makes the girls write out on slips of paper what they complain of. Within a week girls wrote that they were troubled with "sour eyes," "sore trot," etc. Now, I do not believe the defects of those children were due to studying too hard. These were girls twelve to fourteen years of age. I am told that no girl fails to graduate for lack of mental ability. Shall we make the standard any lower?

There are some objectionable features about the schoolroom, and foremost I should say was bad ventilation. The ventilation in the best of the buildings is defective. Within one hour after the school has begun the air in the entries is close and lifeless and that in the schoolrooms is worse. The buildings are almost invariably overheated. Another thing is poor light resulting in defective vision with its host of nervous ailments. Some of the schools are surrounded by high buildings, which interferes to a certain extent also with proper air.

It is possible that more might be done in the way of providing special courses for defective children. It seems to me, however, that the present standards are not too high for the average healthy child.

### Recent Literature.

*Human Embryology and Morphology.* By ARTHUR KEITH. Pp. 324; 8vo. London: Edward Arnold. 1902.

This work is designed to meet the peculiar requirements of the British Educational System, and is well adapted for this purpose, which is to

enable a student to pass the so-called advanced examination in embryology as a basis for adult anatomy, without ever having seen an embryo or any microscopical preparations of any phase of embryonic development. The student who wishes to study embryology as it is studied in other countries will find this work very inadequate. One can only condemn the educational system which makes such works as the present possible. The book is, however, by no means without substantial merit, for it is very clearly written, is quite concise, and makes a direct and very instructive connection between the data of embryology and the adult anatomy. For those who seek in embryology only anatomical clues, the book may be recommended. The author appears to have only a reading knowledge of embryology, and the work is replete with errors which would be impossible to anyone who had a practical acquaintance with the science. For examples: On page 86 the polar body is said to arise by extrusion from the nucleus of the ovum. In Fig. 77 the allantois is represented as extending in the human embryo over the surface of the placenta, a condition which would make the formation of the human placenta impossible. On page 105 it is stated that a glomerulus is developed in each pronephric tubule, the absence of the glomerulus being in reality the fundamental characteristic of such tubules. On page 109 it is stated that the tubules of the kidney are at first straight, "but as they grow each tubule becomes convoluted," the fact being that the tubule is convoluted from the start, and that subsequently part of it becomes straight.

The illustrations are entirely diagrams, rather coarsely drawn, but as diagrams they may be commended for their clearness. The book is attractively printed and has an extensive index.

*Practice of Medicine.* By Eminent Medical Specialists and Authorities. Edited by GEORGE ALEXANDER GIBSON, M.D., D.Sc., F.R.C.P. (Ed.), Physician to the Royal Infirmary, Edinburgh. Philadelphia: J. B. Lippincott Co.; Edinburgh and London: Young J. Pentland. 1901.

This "Practice of Medicine" is in two octavo volumes of about 800 and 900 pages respectively. A large number of the most prominent names among teachers in the medical schools and physicians to the hospitals of Scotland and England are found among the collaborators. The editor states as a *raison d'être* for this work the considerable lapse of time which has occurred since the publication in the United Kingdom (this country) of a textbook similar to this, and the want of a work reflecting modern English teaching, created by the advances in every branch of medicine during this interval. This statement may be correct as applied to the United Kingdom, and may be a sufficient justification there for fathering another textbook on the practice of medicine, but it certainly would not apply to the United States, where we are being flooded with this kind of medical literature.

The first volume opens with an introductory chapter on the General Pathology of Disease; Section I is devoted to General (Constitutional) Diseases; Section II, Diseases Caused by Animal Parasites; Section III, Diseases Caused by Chemical Substances; Section IV, Diseases of the Alimentary System; Section V, Diseases of the Hemopoietic System; Section VI, Circulatory System; Section VII, Respiratory System; Section VIII, Diseases of the Kidney; Section IX, Integumentary System; Section X, The Nervous System.

The book is a good book of its kind, but in this country there would certainly be no suffering if it were not available. It naturally exhibits in a measure that want of unity and continuity inseparable from all such books upon which a large number of writers have collaborated. On the other hand, something is gained by a method which allows special subjects to be assigned to individuals with special qualifications—and thus, for example, tropical and subtropical diseases are dealt with by Dr. Patrick Manson.

In the matter of illustrations an unusual restraint has been shown; this book has not been turned into a picture book for the medical nursery.

*A Manual of Clinical Laboratory Methods.* By JOHN BENJAMIN NICHOLS, M.D., in charge of Clinical Laboratory, Garfield Hospital; Hematologist to Columbian University Hospital; Professor of Normal Histology in Medical Department of Columbian University, Washington, D. C. Illustrated. New York: William Wood & Co. 1902.

This book is useful though not remarkable. It duplicates many others on the same subject. If the time required in its composition had been devoted to original research, American medicine might have been advanced.

The description of methods is detailed, and meets the need of the average young physician.

This is the book's best quality. A lack of perspective in the allotment of space to the various laboratory procedures and the mediocre plates (those alone being good which advertise apparatus) are its chief faults.

The following suggestions occur to us: A description of the method for the estimation of ammonia would be desirable; cirrhosis of the liver might well be regarded as a contra-indication to the passage of a stomach tube; twenty-nine different chemical tests are prescribed in the schedule for the examination of gastric contents; such schedules do harm because they lead physicians to believe that the study of gastric contents is difficult when in reality it is easy; more space might well be devoted to the microscopical examination of such fluids which yields far more return than is often thought and taught; the possibility or, rather, probability of an error of 100% (more or less) in urea determinations in diabetes is not mentioned; it is not so well known as it should be that acetone, diacetic acid and B-oxy-butyric acid contribute

to this error as well as ammonia. It would be well to explain why the urine should be boiled in performing the ferric chloride test for diacetic acid. Williamson's method for the detection of small amounts of sugar in the urine is excellent; if the test with Fehling's solution is doubtful, ferment the urine; if the reaction appears on again applying Fehling's test, it shows that glucose is not the cause.

*Syphilis.* A Symposium. Contributions by Seventeen Distinguished Authorities. New York: E. B. Treat & Co. 1902.

The little volume with the above title contains thirteen short essays upon certain features of syphilis, to which are added at the end of the book, the replies of several syphilographers to some questions in regard to some of the more doubtful points of the malady.

In view of the already existing admirable works upon the subject that are available, we cannot think that this work is a very valuable contribution to its literature. The essays are certainly not without interest, and would serve excellently as preludes to discussions at the meetings of a club of specialists, but we have already a plethora of writings of all sorts upon syphilis, and this new one seems to us a rather unnecessary addition to the accumulation of such material.

It is interesting to note the divergence of opinion of the authors, which is shown in some of the replies to the six questions at the end of the volume. One of these questions is the following: "Has the range of remedies in syphilis increased in recent years?"

*Replies.*—(1) Duhring: "The range of remedies has certainly increased of late," etc. (2) Lydston: "It is an undisputed fact that our armamentarium therapeuticum has not been enriched by the introduction of any remedies which can be relied upon for the cure of syphilis since our old standbys mercury and iodine. There have been, however, certain additions to and modifications of our orthodox treatment which have proved of great value. . . . The hypodermic use of mercury, . . . potassium chlorate in full doses," etc. (3) Horwitz: "No. Many new remedies have been recommended, none of which have proved of value." (4) Morton: "Not materially." (5) Keyes: "Yes."

Of the essays, that of Fournier, "On the Clinical Characteristics of the Chancre," is perhaps the best.

*Studies in Heterogenesis.* By DR. H. CHARLTON BASTIAN. First part; 8vo, pp. x-61. London: Williams & Norgate. 1901.

Dr. Bastian maintains in this work that one form of protozoa may spontaneously give rise to another form, and that protozoa may arise spontaneously from certain low vegetables. The phenomenon he calls heterogenesis. As proof he puts specimens of one sort or another in an earthenware pot, apparently not sterilized or even clean, and allows them to stand for some

days exposed to the air. He then finds that the water contains other organisms than those which he himself put in. This method seems to us to sufficiently account for the absurd conclusions which the author has reached. His work is not one which calls for any comment or even for any attention from scientific workers.

**Simon's Clinical Diagnosis.** A Manual of Clinical Diagnosis by means of Microscopical and Chemical Methods, for Students, Hospital Physicians and Practitioners. By CHAS. E. SIMON, M.D., author of Simon's Physiological Chemistry, etc. New (4th) edition, thoroughly revised and enlarged. One octavo volume of 608 pages, illustrated with 189 engravings and 19 plates in colors. Philadelphia and New York: Lea Brothers & Co. 1902.

This book is really an excellent textbook on laboratory diagnostic methods. These methods are of great importance but have been much underrated solely, it is true, by those clinicians whose early training in this line has been unfortunately neglected.

Such a book furnishes an excellent opportunity for the clinician who is uneducated in laboratory methods to get an insight as to the laboratory manner of procedure and to interpret correctly the importance of the findings.

This last, or fourth, edition is well up to date and contains a most valuable list of references to the original literature on the various subjects treated.

**History of Medicine.** A Brief Outline of Medical History and Sects of Physicians, from the earliest Historic Period; with an Extended Account of the New Schools of the Healing Art in the Nineteenth Century, and especially a History of the American Eclectic Practice of Medicine, never before published. By ALEXANDER WILDER, M.D. New Sharon, Me.: New England Eclectic Publishing Co. 1901.

This book of 946 pages, with a copious index, is an attempt to review the history of medicine, both in ancient and modern times. A large part of the volume is taken up with a discussion of more or less irregular schools of medicine, their quarrels and difficulties. Much of this is too trivial to merit the recognition it receives. It is natural, in consideration of the author's affiliations, that he should give much space to the so-called eclectic school of medicine. The book is cheaply printed and bound.

**A LIGHT INSTITUTE IN VIENNA.**—According to the *New York Medical Journal* a subscription is being raised in Vienna for the establishment of a light institute there for the treatment of lupus, similar to Finsen's Institute at Copenhagen. It is estimated that the establishment will cost 300,000 crowns. The list has been headed with a subscription from the Emperor Francis Joseph of 10,000 crowns.

THE BOSTON  
**Medical and Surgical Journal.**

THURSDAY, APRIL 10, 1902.

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THE DEVELOPMENT OF PSYCHIATRY.

It is a source of gratification that psychiatry is gradually taking the place in this country which it would long since have occupied had not its study, through force of circumstances, been so largely divorced from general medicine. When mental disorders could only be studied at institutions, usually located at a considerable distance from medical schools, and no clinical facilities near at hand were provided, it is natural that the subject should have received little attention. The difficulties still remain to a very great extent, though there are distinct signs of a change for the better, in which New York appears likely to be a pioneer. The movement for the establishment of retention and observation hospitals for acute cases, and the wider work about to be undertaken by the reorganized Pathological Institute under the direction of Dr. Adolf Meyer, bid fair to open the way for a more intelligent treatment and study of an exceedingly important class of cases. Not only New York, but the entire country, will observe the work about to be inaugurated with extreme interest, and also, we hope, with a proper sense of the difficulties to be met and surmounted if the outlined plans are to succeed. No other field approaches this in the subtlety of the problems to be solved, and in no other is accuracy of observation and untiring patience so urgently needed. The microscope has as yet accomplished little in the solution of the fundamental questions, and the pathological laboratory, of which so much was hoped a few years ago, has not justified expectations. This is not in the least surprising; the laboratory is an essential adjunct of any hospital, but the problems to be solved do not emanate from the laboratory, but rather from the patients, for whom the laboratory exists. It has been evident for several years that those psychiatrists to whom we must

look for progress have been turning their attention more and more into clinical channels and lines of clinical study. They are attempting to reduce to some semblance of order the chaos of symptoms which go to make up the picture of a disordered mental state. They are looking for essentials and characteristic features of disease, to the end that they may find a field of application for their pathological and chemical methods. In other words, they are busily framing problems from clinical observation, which offer some hope of practical solution.

Among this relatively small class of psychiatrists in this country Dr. Meyer must certainly be given a foremost place. He has recently accepted a position of trust and great responsibility in connection with the New York State hospitals. That he realizes to the full how difficult his work is likely to be is evident from much that he has written. He is not a violent enthusiast; his experience has been wide and varied, but he believes thoroughly in the possibilities of the work he has undertaken, and which we are confident he will do much to further. In a recent paper before the New York Neurological Society, Dr. Meyer pointed out the shortcomings of present methods and suggested many lines of improvement. In his opinion the central institute in New York City should offer advanced instruction in clinical psychiatry, but should not abandon original research in the process. He insisted that the safest starting point was actual experience, that difficulties in the way of good work were hospital routine, insufficiency of physicians in institutions, and consequent carelessness in clinical observation. Psychiatry as yet knew little of diseases in the sense of pathological entities, hence the greater necessity of accurate records of cases, which were, at present, rarely to be found. The prevalent "impressionist method" he deprecated, and finally urged that the new movement must be a natural outgrowth of the present conditions.

There will be many prejudices to be overcome and many misunderstandings to be adjusted before this apparently simple plan can be carried out as Dr. Meyer designs. It is, therefore, fitting that he should have the support of the profession everywhere, which must be interested in this great social and economic as well as medical problem.

#### THE GROWTH OF OSTEOPATHY.

THE so-called practice of osteopathy is apparently gradually gaining for itself recognition in various parts of the country. It is never surprising that the people at large take up anything which holds out a promise of relief for human

ills; this is altogether to be expected, and is productive of harm only to the individual who permits himself to be gulled. A somewhat different face, however, is put upon the matter when this or any other irregular mode of practice is legalized by legislative action. The osteopaths, with persistency worthy of a better cause, have brought bills year after year looking to the recognition of their preposterous claims by various state governments. In some instances their efforts have succeeded and in some they have failed, but it is sufficiently evident that they are gradually gaining adherents, which means ultimately the influencing of legislatures. As published in another part of this issue the osteopaths have gained a point in Iowa, so that hereafter they are to be recognized not only as legitimate practitioners, but are also likely to be represented on the Board of Health. In Virginia, within a short time, the Senate Committee has voted against a bill requiring osteopaths to submit to an examination before the Board of Medical Examiners. It is reported that another bill is to be presented to provide for an Examining Board of Osteopaths. Another bill is to be presented this year before a committee of the Massachusetts Legislature looking toward similar privileges in this State.

The *New York Medical Journal*, in its issue of April 5, presents a summary of state medical laws which is being prepared by the secretary of the board, for the Board of Health of the State of Illinois. The following details are of interest:

"Osteopathy is legalized and its practice is regulated by legislative enactments in the following states: California, Connecticut, Indiana, Iowa, Kansas, Michigan, Missouri, Montana, Nebraska, North Dakota, Ohio, South Dakota, Tennessee, Vermont and Wisconsin. In Massachusetts and Texas osteopaths are exempted from the provisions of the medical law of the State. Under the provisions of the medical law of Illinois, enacted in 1899, the State Board of Health is empowered to examine and license persons who desire to practise any certain 'system or science of treating human ailments, who do not use medicines internally or externally and who do not practise operative surgery,' the said examination to 'be of a character sufficiently strict to test their qualification as practitioners.' Any person is eligible to this examination, which embraces the following subjects, in each of which ten questions are asked: Anatomy, chemistry, histology and pathology, hygiene, physiology, and symptomatology. An applicant receiving an average rating of 75% in this examination is issued a certificate by the State Board of Health. All persons thus licensed are prohibited by the statutes of



Illinois from calling or advertising themselves as physicians or doctors.

"In addition to the states mentioned, the practice of osteopathy is seemingly permitted in the following, although technically prohibited by law: Alabama, Arizona, Arkansas, Colorado, Delaware, District of Columbia, Florida, Georgia, Idaho, Kentucky, Louisiana, Maryland, Minnesota, Mississippi, New Jersey, New Mexico, New York, North Carolina, Oklahoma, Oregon, Pennsylvania, Rhode Island, Utah, Virginia, Washington, West Virginia and Wyoming. The laws of Maine and New Hampshire permit the practice of magnetic healing, mind cure, massage, Christian Science, or other methods of treatment in which no drugs are used. Prosecutions have been attempted in Arkansas, Georgia, Kentucky, Louisiana, Minnesota, Mississippi, New Mexico, Pennsylvania, Utah, and possibly others, with varying results."

Osteopathy, like many other kindred "systems" which have preceded it, will undoubtedly pass into oblivion before many decades have passed. It presents nothing new excepting certain clear misrepresentations of facts and false theories, an originality which in the natural course of events is doomed to a short span of life. In the meantime, however, it would be well for communities everywhere to be on their guard against the encroachments of "schools" which claim new and revolutionary discoveries in the field of applied medicine.

#### THE ARMY MEDICAL SCHOOL.

A LARGE and distinguished company attended the closing exercises of the Army Medical School, session of 1901-1902, at the National Museum, Washington, D. C., on April 4. The diplomas were presented to the twenty-three graduating medical officers by the Secretary of War, while addresses were made by Lieutenant-General Miles, head of the army, and Surgeon-General Sternberg, the founder of the school. Music was furnished by the U. S. Engineer Band. A feature of the program was the presentation of the Hoff Memorial Medal, awarded, for the highest average attained during the session, to Assistant Surgeon James M. Phalen. In addition to Dr. Phalen, there were three other "honor graduates" who had attained an average of 90% or higher during the course. These were Assistant Surgeons Conrad E. Koerper, Roderic P. O'Connor and Robert U. Patterson. Immediately after graduation, the young medical officers of the class left for the Philippines, to which they have been ordered for duty.

The course at the Army Medical School extends over a period of five months, and is so

planned as to supplement the usual course of instruction given at the medical schools of the country. Military hygiene, military medicine, military surgery, sanitary chemistry and sanitary microscopy are all thoroughly taught. Much attention is given to instruction in the special duties of army medical officers, hospital management, and first aid and transportation of wounded. A full course of lessons on military law is also given. On graduation, the newly appointed assistant surgeon is well qualified to undertake his new duties, many of which, from the nature of military service, are quite dissimilar from those of a practitioner in civil life, but which are, nevertheless, of the highest importance. It is in the prevention of disease that the army surgeon finds his field of greatest opportunity, and this is a subject which is, unfortunately, practically ignored by the majority of medical schools in this country.

#### MEDICAL NOTES.

AN OPENING FOR INTERNES IN THE NEW YORK STATE HOSPITALS.—Students about to graduate who are unable to secure positions in general hospitals, or young physicians whose terms are about to expire in general hospitals and who wish to enlarge their experience, are now offered an opportunity to enter the New York State hospitals as internes or clinical assistants. These positions provide lodging and board. Appointments are made for a year. Some twenty-eight positions will be opened in the fourteen State hospitals situated in the following places in New York State: Utica; Buffalo; Gowanda (homeopathic); Binghamton; Kings Park, L. I.; Flatbush, Brooklyn; Central Islip, L. I.; Wards Island, New York City (two hospitals); Rochester; Ogdensburg; Poughkeepsie; Willard; Middletown (homeopathic). Although these are hospitals for the insane, yet they are so large that opportunities for experience in general medicine are abundant. Each hospital is well equipped with clinico-pathological laboratory and apparatus, operating rooms, trained nurses, hydrotherapeutic and electrical devices and good medical libraries. The field for study in general medicine is excellent, and surgical operations of all kinds are frequently performed, either by resident or consulting surgeons. It is thought that many students who wish hospital experience and are unable to obtain it because of the relatively few places available in general hospitals may be glad to learn that positions of this kind have been thrown open to them. It is believed that young physicians wishing hospital experience will profit by a year's residence in one of these hospitals, and such as desire to continue in special work

would be eligible for appointments subsequently to salaried positions in the same service. No examinations will be necessary, but application must be made in person, with good references, directly to the medical superintendent of any of the above named hospitals or to Dr. Frederick Peterson, president of the Commission in Lunacy, 4 West 50th Street, New York City.

**PASSAGE OF AN OSTEOPATHY BILL.**—It is reported from Des Moines, Ia., that the House has passed the Senate bill in recognition of the Osteopathic School of Physicians, authorizing the State Board of Medical Examiners to issue certificates to graduates of so-called osteopathic colleges and to others who pass examination, and authorizing the choice by the governor of an osteopathic physician to become a member of the State Board of Health and State Board of Medical Examiners.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, April 9, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 42, scarlatina 9, measles 176, typhoid fever 13, smallpox 17.

**BOSTON MORTALITY STATISTICS.**—For the week ending Saturday, April 5, the total number of deaths reported to the Board of Health was 233, against 211 the corresponding week last year, showing an increase of 22 deaths, and making the death-rate for the week 21.2. Of this number 112 were males and 121 were females; 224 were white and 9 colored; 148 were born in the United States, 82 in foreign countries and 3 unknown; 51 were of American parentage, 146 of foreign parentage and 36 unknown. The number of cases and deaths from infectious diseases reported was as follows: Diphtheria, 41 cases and 4 deaths; scarlatina, 13 cases and no deaths; typhoid fever, 9 cases and 1 death; measles, 147 cases and 2 deaths; tuberculosis, 11 cases and 23 deaths; smallpox, 23 cases and no deaths. The deaths from pneumonia were 48, whooping cough, 2, heart disease, 25, bronchitis, 4. There were 9 deaths from violent causes. The number of children who died under 1 year was 29, the number under 5 years, 66. The number of persons who died over 60 years of age was 55. The deaths in public institutions were 79. This is the first week since Oct. 26, 1901, that no deaths from smallpox have been reported by the Health Department.

**SMALLPOX AT EVERETT, MASS.**—Five new cases of smallpox have appeared in the town of Everett. They are in four families living in the same gen-

eral neighborhood. Although quite a number of cases have occurred in the town during the winter, none have as yet proved fatal.

**A CENTENARIAN.**—William Gilliam of Orr's Island, Maine, said to have been 102 years old, died last week. He was born on the island and had lived there all his life as fisherman and farmer.

#### NEW YORK.

**MORTALITY STATISTICS.**—The reports of the Health Department for the month of March show a gratifying reduction in the death-rate of the city. The mortality given represents an annual death-rate of 19.76, against 21.79 in February, and 21.39 in March, 1901. Among the diseases in which the mortality declined were the following: The weekly average of deaths from diphtheria and croup decreased from 47.75 in February to 38.75 in March; the weekly average of deaths from scarlet fever, from 34 to 25.5; from measles, from 34.75 to 23.5; from smallpox, from 12 to 9.5; from pneumonia, from 218.75 to 161.25; from phthisis, from 184.25 to 170.5; from bronchitis, from 61 to 45; and from diseases of the urinary system, from 129.5 to 119. Among the few diseases which showed an increased mortality were typhoid fever, in which the weekly average of deaths rose from 5.75 to 6.5, and cancer, in which the weekly average rose from 44 to 47. In the month of March the mortality lists are generally among the heaviest of the year, and the unexpectedly favorable results this year are no doubt to be attributed, to a very considerable extent, to the weather, which was unusually mild and pleasant for the season. The deaths from pneumonia have fallen below those from pulmonary tuberculosis unusually early this year, and this is probably to be explained largely by the fact that there has been an exceptionally small prevalence of influenza. Aside from the deaths from pneumonia, in which it so commonly constitutes a factor, the weekly average of deaths from influenza was only 6 in December, 7.25 in January, 8.75 in February, and 8 in March. Smallpox appears to be again on the wane, and in the week ending March 29 there were but 4 deaths from it, the lowest mortality from this disease in any one week since early in January. It may be mentioned as an exceptional circumstance that during the last week of March no less than 12 deaths were reported from aneurism.

**VIOLATION OF LIQUOR TAX LAW.**—For more than a month past State excise agents have been at work in and about New York, getting evidence against druggists violating the liquor tax law, and within the past week more than 200 druggists have been notified that they had violated the con-

ditions of their license and would be required to pay a forfeit of \$500. As a consequence, there is much indignation among the druggists, who claim that the liquor had been obtained by false representations, in every instance, on the part of the detectives, who declared they were physicians or represented the supposed case to be one of extreme emergency. On April 4 the Manhattan Pharmaceutical Association, comprising about 250 of the leading druggists in the borough, held a meeting at the College of Pharmacy, and passed resolutions condemning the action of the State authorities. All the druggists who have received notices from the Excise Department at Albany are licensed to sell liquor under certain restrictions, and they will resist by legal measures the payment of the fines imposed upon them.

**BOARD OF MANAGERS DECLINES TO SERVE.**—At the final meeting of the old Board of Managers of the St. Lawrence State Hospital for the Insane, at Ogdensburg, N. Y., held March 27, it was announced that the five members of the board whom Governor Odell had appointed on the Board of Visitation of the hospital, under authority of the new law, would decline to serve. A memorandum was unanimously adopted to the effect that the Board of Managers had conducted their office honorably and energetically, and that they believe it would be injudicious to continue service under the new law, which deprives them of all power in the management of the institution.

**A GIFT FOR ANOTHER HOSPITAL.**—Mr. J. Pierpont Morgan has given \$60,000 for a Deaconess' Home and Hospital, to occupy two city lots, in connection with St. George's Church. In the upper part of the building will be a completely equipped convalescent hospital, with a solarium.

#### WASHINGTON.

**PURE FOOD LEGISLATION.**—An earnest effort is being made to secure the passage of a bill introduced by Mr. Hepburn into the House, regulating the adulteration and misbranding of articles of food and medicines. It is believed that the bill can be passed if its proper consideration can be secured, in spite of powerful opposition to it on the part of some commercial interests. This bill has in the past been reported nine times to the House and eight times to the Senate, having passed the Senate once as the Paddock bill. While it has been amended, the essential features remain the same. While many states have local laws regulating the sale of adulterated foods prepared within their own limits, these laws have been found highly ineffective, since articles of this character sold within one state are usually manufactured in another. The Hepburn bill renders effective the local laws on this subject, since

it regulates interstate commerce in adulterated foods, and enables the authorities of a state to prevent the sale of food of impure or poor quality which has been shipped in from outside. The passage of this bill is of the greatest personal importance to every citizen of the United States. Public indifference to the question of adulterated foods, and the influence exerted by powerful commercial interests upon Congress, is nevertheless responsible for the many successful attempts to defeat the passage of this bill in the past. It remains to be seen if commercial greed will again be allowed to rise superior to the public welfare.

### Miscellany.

#### THE PATRICK CASE FROM A MEDICO-LEGAL POINT OF VIEW.


FROM a medico-legal point of view the verdict of guilty in the notorious Patrick trial recently completed was not a little surprising, and a medical writer has now reviewed the case in the *New York Times*. In his charge to the jury Recorder Goff said: "The one point on which the whole case rests is — Did the giving of chloroform cause death? You have the testimony of Jones (the alleged tool of Patrick) that it did. You have the testimony of the doctors who performed the autopsy that death was the result of inhaling an irritant poison. The evidence of Jones is from a self-confessed murderer, but that does not make him an incompetent witness." He then went on to state that such evidence should be received with great caution and must be corroborated by other evidence, which, however, need not be sufficient in itself to prove guilt. The statement by Jones that he placed a towel made into a cone and saturated with chloroform over Rice's face, the writer points out, is contradicted by the fact that the movements on the part of the subject of such a procedure would inevitably throw off the towel if he were in a natural sleep, and not either insensible or dead. In administering chloroform it is well known that before there is any considerable anesthetic effect the interfered-with natural respiration invariably gives rise to more or less muscular resistance, which would certainly dislodge a cone simply put over the respiratory openings and not forcibly held in place. (Jones testified that after putting the cone over Rice's face he immediately left the room.) If it remained there for many minutes, as stated, Rice was either dead at the time of the application or in a state of coma immediately preceding death; which latter could be satisfactorily accounted for by the condition of the lungs found on post-mortem examination. There was no evidence of the characteristic odor of chloroform about the person of the deceased or in the room, and the very competent expert chemist of the prosecution

(Dr. Witthaus) did not testify to any evidence of chloroform in his examinations, although positive evidence is easily obtainable many days after death from chloroform inhalation. It is a matter of common professional knowledge that when death occurs from chloroform inhalation it is not due to any irritating effects of the vapor upon the respiratory passages. The proposition submitted in the charge to the jury, "Did Rice die from the effect of that chloroform and from no other cause?" is contradicted absolutely by the absence of all evidence of death from chloroform and the existence of edema of the lungs in sufficient degree to cause death, and not attributable to chloroform inhalation. The medical attendant (a reputable physician whom the prosecution itself was careful to acquit of the slightest collusion in the alleged murder) gave a certificate that death was due to natural causes. (The deceased was eighty-four years old and had been feeble for a long time.) At the autopsy made by the coroner's physicians extensive and presumably fatal congestion and edema of the lungs were found, and no evidence of any other cause of death, and the assumption that death was due to pulmonary irritation produced by the inhalation of the vapor of chloroform — which is notoriously but very slightly irritating when inhaled — is scientifically untenable.

The only theory of the manner of the murder was one presented in the last of several confessions by Jones. In order to secure a verdict of guilty the jury was asked to believe the unsupported testimony of this discreditable and discredited witness, an assumed accomplice to the assumed conspiracy to murder, to the incredible story that he killed Rice by roughly and hastily giving him chloroform during sleep. Of the many attempts that have been made to chloroform a person while asleep the very great majority have failed, and the few that have succeeded have been in the most skilful hands and were conducted with the greatest care and deliberation. It is certainly extraordinary that the defense, instead of wasting time and energy in combating evidence as to motive, did not seriously attempt to establish, by their own experts and by cross-examination of the experts for the prosecution, certain facts which belong to common professional knowledge: (1) That chloroform administered in the manner and under the conditions testified to by Jones could not have killed Rice unless he was at the time practically insensible; (2) that chloroform vapor is very slightly irritating to the respiratory passages, and that chloroform never kills by irritation of the lungs; (3) that the pulmonary congestion and edema testified to by the physicians who made the autopsy was a sufficient cause, and a natural cause, of death. That Patrick desired and plotted the death of Rice may be true, but that Rice's taking off was accomplished in the manner alleged is entirely without adequate proof. Whether he is guilty or not, he is entitled, under the law, to his constitutional rights, and should have been convicted only in strict accordance with law and evidence.

## METEOROLOGICAL RECORD

For the week ending March 29, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.	
S...23	30.00	50	58	43	79	60	70	N	N	W	6	10	O.	O.	T.
M...24	30.04	40	44	36	60	63	62	N	N	E	6	8	C.	C.	
T...25	30.17	40	46	34	64	75	70	N	N	E	17	20	C.	C.	F.
W...26	30.36	37	42	32	75	71	73	N	N	E	8	10	C.	C.	
T...27	30.21	46	57	34	52	53	52	S	W	S	9	20	O.	R.	.07
F...28	30.01	49	57	41	78	96	87	S	W	S	11	8	O.	R.	
S...29	29.67	53	56	50	94	97	96	S	S		18	9	O.	O.	1.13
	30.07		51	39			73								1.20

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MARCH 29, 1902.

CITIES.	Population * Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Cerebro-spinal meningitis.	
New York...	3,665,852	1,841	488	25.29	14.21	3.42	.67	.45	
Chicago...	1,862,828	544	167	21.32	16.17	3.67	.56		
Philadelphia...	1,349,624	500	135	20.40	12.60	2.80	4.00	.20	
St. Louis...	603,717	—	—	—	—	—	—	—	
Baltimore...	525,330	192	61	16.67	14.06	1.04	1.04		
Cleveland...	411,826	—	—	—	—	—	—	—	
Buffalo...	378,742	—	—	—	—	—	—	—	
Pittsburg...	341,401	136	50	30.14	25.00	2.94	7.35		
Cincinnati...	332,032	—	—	—	—	—	—	—	
Milwaukee...	304,975	—	—	—	—	—	—	—	
Washington...	289,537	—	—	—	—	—	—	—	
Providence...	186,870	57	15	8.77	19.30	1.75	1.75	1.75	
Boston...	588,736	203	47	22.63	16.73	.98	1.97	.49	
Worcester...	127,337	28	18	17.85	17.85	—	—	11.71	
Fall River...	111,872	35	16	11.43	48.48	—	—	—	
Lowell...	99,574	29	7	10.34	27.58	—	—	—	
Cambridge...	96,334	19	3	36.82	15.78	5.26	5.26	—	
Lynn...	71,144	9	1	—	—	—	—	—	
Lawrence...	67,275	19	7	21.04	31.56	—	—	—	
Springfield...	66,854	20	5	25.00	5.00	—	5.00	—	
Somerville...	65,882	17	6	11.76	17.64	—	—	—	
New Bedford...	65,574	30	10	10.00	30.00	33.33	—	—	
Holyoke...	48,065	16	9	31.25	—	—	—	—	
Brockton...	43,208	9	1	33.33	—	—	—	11.11	
Haverhill...	40,392	6	1	—	—	—	—	—	
Salem...	36,567	14	4	7.14	21.42	—	—	—	
Newton...	36,336	7	3	—	14.30	—	—	—	
Malden...	35,390	13	4	77.00	—	7.70	—	—	
Chelsea...	35,264	9	—	—	—	—	—	—	
Fitchburg...	33,848	10	3	—	10.00	—	—	—	
Taunton...	32,759	6	2	50.00	16.67	—	—	—	
Everett...	27,114	6	2	16.67	—	—	16.67	—	
North Adams...	26,583	4	2	—	25.00	—	—	—	
Gloucester...	26,121	6	1	33.33	—	—	—	—	
Quincy...	25,307	5	2	—	20.00	—	—	—	
Waltham...	24,612	8	—	12.50	25.00	—	—	—	
Pittsfield...	22,311	5	—	20.00	—	—	—	20.00	
Brookline...	21,679	—	—	—	—	—	—	—	
Chicopee...	20,390	7	1	28.60	—	—	—	—	
Medford...	20,014	2	—	50.00	—	—	—	—	
Newburyport...	14,478	2	1	—	—	—	—	—	
Melrose...	13,384	3	1	—	33.33	—	—	—	

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,348; under five years of age, 1,075; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption, 753, acute lung diseases 514, consumption 367, scarlet fever 38, erysipelas 10, typhoid fever 51, whooping cough 29, cerebrospinal meningitis 14, smallpox 12, measles 47, diarrheal diseases 73.

From whooping cough, New York 13, Chicago 6, Philadelphia 1, Baltimore 3, Pittsburg 4, Boston 1, Gloucester 1. From cerebrospinal meningitis, New York 6, Philadelphia 1, Providence 1, Boston 1, Worcester 3, Brockton 1, Pittsfield 1. From scarlet fever, New York 22, Chicago 7, Philadelphia 1, Pittsburg 3, Springfield 2, Worcester, Fall River and Lawrence 1 each. From erysipelas, New York 2, Chicago 2, Philadelphia 3, Pittsburg 2, Boston 1. From smallpox, New York 4, Philadelphia 3, Boston 4, Cambridge 1. From typhoid fever, New York 9, Chicago 3, Philadelphia 20, Baltimore 2, Pittsburg 10, Boston 4, Cambridge, Springfield and Everett 1 each.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending March 15, the death-rate was 19.6. Deaths reported 5,573; acute diseases of the respiratory organs (London) 498, whooping cough 136, diphtheria 71, measles 187, smallpox 100, scarlet fever 50.

The death-rate ranged from 6.6 in Handsworth to 29.6 in Merthyr Tydfil; London 22.0, West Ham 19.9, Croydon 18.5, Brighton 20.5, Portsmouth 17.1, Southampton 18.9, Bristol 19.8, Birmingham 18.8, Leicester 18.6, Nottingham 17.2, Birkenhead 15.8, Liverpool 21.6, Manchester 22.4, Salford 14.0, Bradford 15.5, Leeds 20.8, Sheffield 16.7, Hull 17.2, Newcastle-on-Tyne 20.0, Cardiff 19.1.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MARCH 15, 1902.

L. W. SPATLING, surgeon. Detached from the Naval Recruiting Station, Buffalo, N. Y., and ordered to the Naval Hospital, Portsmouth, N. H.

O. D. NORTON, surgeon. Ordered to the "Richmond" as relief of Surgeon E. H. Marsteller.

E. H. MARSTELLER, surgeon. Detached from the "Richmond" and ordered to the "Lancaster."

E. S. BOGERT, JR., surgeon. Detached from the "Lancaster" and ordered to Buffalo, N. Y., for duty at the Naval and Marine Recruiting Rendezvous.

J. C. PAVOR, passed assistant surgeon. Detached from the Naval Hospital, Newport, R. I., and to hold himself in readiness for duty on the "Massachusetts."

B. R. WARD, passed assistant surgeon. Detached from the "Constellation" and ordered to the Navy Yard, Boston, Mass.

P. E. McDONNOLD, assistant surgeon. Detached from the Naval Academy, and ordered to the "Olympia."

C. M. OMAN, assistant surgeon. Detached from the Naval Hospital, New York, and ordered to the "Constellation."

W. E. GRIFFIN, assistant surgeon. Ordered to the Naval Hospital, Newport, R. I.

H. A. DUNN, assistant surgeon. Detached from the "Frolic" and ordered to duty with the Marine Brigade.

J. M. BRISTER, assistant surgeon. Detached from duty with the Marine Brigade and ordered to the "Frolic."

U. R. WEBB, assistant surgeon. Detached from the "Kentucky" and ordered to the "Iris."

E. V. ARMSTRONG, passed assistant surgeon. Detached from the "Olympia" and ordered to Washington, D. C., and home to wait orders.

#### FOR SEVEN DAYS ENDING MARCH 22, 1902.

N. M. FEREBEE, medical director. Commissioned a medical director from Jan. 26, 1902.

S. H. DICKSON, medical inspector. Commissioned a medical inspector from Jan. 26, 1902.

E. J. GROW, passed assistant surgeon. Commissioned a passed assistant surgeon from June 8, 1901.

E. G. PARKER, passed assistant surgeon. Commissioned a passed assistant surgeon from Jan. 10, 1902.

C. M. OMAN, assistant surgeon. Detached from the "Constellation" and ordered to report to the commandant of the Marine Corps, Washington, D. C., to accompany a detachment of marines to the Asiatic Station.

#### FOR THE WEEK ENDING MARCH 29, 1902.

W. R. DU BOSE, surgeon. Ordered to the "Wisconsin" and to report to the Commander-in-Chief of the Pacific Station as fleet surgeon.

#### SOCIETY NOTICES.

SUFFOLK DISTRICT MEDICAL SOCIETY.—The Section for Clinical Medicine, Pathology and Hygiene will meet in Sprague Hall, Medical Library Building, Wednesday, April 16, at 8 p.m.

Dr. R. C. Larrabee will present a paper entitled "The Effect of Exercise upon the Heart." Discussion by Dr. Allen Cleghorn. Dr. E. G. Cutler will report "A Case of Typhoid Spine"; Dr. J. M. Jackson will present a paper upon "Some Cases of Malaria Accompanied by Acute Abdominal Symptoms." Dr. H. F. Hewes will speak of the "Diagnosis of Malaria by the new Leischman-Jenner Method of Blood Staining."

H. F. HEWES, M.D., Secretary.

ASSOCIATION OF AMERICAN PHYSICIANS.—The seventeenth annual meeting of the association of American Physicians will be held in Washington, D. C., April 29 and 30 and May 1. The meetings of the Association and the annual dinner will be held at Willard's Hotel.

#### RECENT DEATH.

Dr. MOSES T. BABCOCK of Hammondsport, N. Y., died on March 31 at the age of seventy-seven. He was Assistant Surgeon of Volunteers during the Civil War, but had practised at Hammondsport altogether for about fifty years.

#### BOOKS AND PAMPHLETS RECEIVED.

Appendicitis. A Symposium by the Cuyahoga County Medical Society of Cleveland, Ohio. Reprint. 1900.

Seventeenth Annual Report of the Adirondack Cottage Sanitarium. Illustrated. Saranac Lake, N. Y. 1901.

Transactions of the Chicago Pathological Society. Illustrated. Chicago: American Medical Association Press. 1902.

The Pennsylvania Society for the Prevention of Tuberculosis. Report for the Year Ending March 1, 1902. Illustrated.

Tuberculosis of the Heart. By H. Newton Heineman, M.D., Bad Nauheim, formerly of New York. Illustrated. Reprint. 1902.

Market Milk: A Plan for its Improvement. By R. A. Pearson, M.S., Assistant Chief of Dairy Division. Illustrated. Reprint. 1900.

Sixteenth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Vols. I and II. 1901.

An Ephemeris of Materia Medica, Pharmacy, Therapeutics and Collateral Information. Alphabetically Arranged by E. H. Squibb, M.D. Brooklyn, N. Y. 1902.

Third Annual Report of the New York State Pathological Laboratory of the University of Buffalo. For the Year 1900. Illustrated. Albany: James B. Lyon, State Printer. 1901.

Contributions to Practical Medicine. By Sir James Sawyer, Knt., M.D. (Lond.), F.R.C.P. (Lond.), F.R.S. (Edin.), F.S.A. Third edition, revised and enlarged. Birmingham: Cornish Brothers. 1902.

The Causes of Death among the Assured in the Scottish Widows' Fund and Life Assurance Society from 1874 to 1894 inclusive. Reported by Claud Muirhead, M.D., F.R.C.P.E. Edinburgh: R. & R. Clark (Ltd.).

Smallpox. An Inquiry into its Real Nature and its Possible Prevention, showing the Extent and Duration of the Protection Afforded by Vaccination. By C. Godfrey Gumpel. London: Swan, Sonnenschein & Co. (Ltd.). 1902.

A Practical Manual of Insanity for the Medical Student and General Practitioner. By Daniel R. Brower, A.M., M.D., LL.D., and Henry M. Bannister, A.M., M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

Experimentelle Untersuchung am Menschen über den Einfluss der Muskulararbeit auf den Stoffverbrauch und die Bedeutung der einzelnen Nährstoffe, als Quelle der Muskelkraft. von Prof. H. Newton Heineman, M.D., aus New York (Abdruck von Pflüger's Arch. 1901, mit Addendum). 1901.

The Practical Medicine Series of Year Books, comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly under the general editorial charge of Gustavus P. Head, M.D. Vol. IV. Gynecology. Edited by Emilius C. Dudley, A.B., M.D. March, 1902. Chicago: The Year Book Publishers. 1902.

## Original Articles.

## PAPERS ON THE DIAGNOSIS OF APPENDICITIS.

BY MAURICE H. RICHARDSON, M.D., BOSTON.

## II. REMARKS ON THE DIAGNOSIS BETWEEN ACUTE APPENDICITIS AND ACUTE INTRATHORACIC DISEASE.

THAT there should be any difficulty in discriminating between acute thoracic and acute abdominal lesions seems, on the face of it, absurd; yet in an experience of between two and three thousand cases of acute abdominal disease the question has arisen often enough to make a deep impression upon me. At first thought it would seem that acute abdominal symptoms occurring in the course of acute intrathoracic disease must indicate an abdominal complication of that disease; that there must be either an abdominal complication of intrathoracic disease or an intrathoracic complication of abdominal disease. Such complications are by no means unusual, as every experienced observer will admit. A right-sided pleurisy or empyema, following in the course of an undoubted appendicitis—and especially in the cases of appendicitis operated upon—is conspicuously a complication of the original disease, and directly dependent upon it, by the extension of the septic process through various channels—*anatomical, lymphatic or vascular*. So, in the course of an acute pneumonia there is no reason why there should not be at the same time an infection—*diplococcal or other*—of the appendix. Such complications are to be expected; they are easy of explanation; they can hardly cause an error in diagnosis.

The following remarks apply rather to cases in which acute sudden pain in the abdomen, with or without other symptoms, suggests appendicitis strongly enough to have a surgeon called. In some of these cases thoracic symptoms are prominent, in others they are not. In some the discovery of thoracic signs will establish at once the diagnosis, the abdominal pain and other symptoms of appendicitis being then regarded as physiological rather than as pathological. Not that an acute pathological process may not start in the appendix at the same time that one starts in the lungs; but such a combination, though possible, is so unusual as to justify, by its very rarity, elimination from the probabilities.

That confusion may arise between certain unusual forms of typhoid fever and acute appendicitis is not to be wondered at, for typhoid fever is, in its local manifestations at least, an abdominal disease; and yet in cases of atypical typhoid in which abdominal pain is a prominent symptom, the diagnosis of appendicitis is seldom made clear and indisputable.

In acute right-sided disease of the thorax, on the other hand, the symptoms of appendicitis may be so typical that unless the surgeon makes tho-

racic examinations an invariable rule, he may be completely deceived, and, in a beginning pneumonia or pleurisy, explore a normal appendix.

It would seem hardly possible that such an error could be made. It must be remembered, however, that in every calling mistakes of the most glaring and inexplicable character are at times made, even by the most experienced. For a true perception of the normal relations of things to be temporarily suspended, it is only necessary that the mind for a moment be dominated by a fixed idea. Who has not, at some time of life, become completely turned around, so that, for example, the sun seemed to rise in the west? Who, even though familiar with the sea, has not entirely miscalculated his bearings—not necessarily in a fog, but when everything was clear—and struck a rock which perhaps he knew even better than the most experienced physician knows a pneumonia or an appendicitis? In every walk in life occasions may arise when one is off his guard—when he forgets that one little thing essential for the safe conduct of his enterprise.

So long as the essential thing is under the observation of a single mind mistakes cannot but occur, even if that mind usually is clear and logical. Influenced by a single suggestion or by a chain of suggestive circumstances, the mind may become so possessed of a certain idea that the result will necessarily be distorted and incorrect. History in general is filled with examples of such errors; and the history of medicine and surgery—could it be truly written—would also be filled with them. It is the object of this paper to record a few in connection with that great topic, appendicitis.

CASE I.<sup>1</sup> On Wednesday, June 7, 1893, I saw, with Dr. Morrison of East Boston, Fred A. R., a boy of six, with the following history, which I give in some detail from my shorthand notes:

On the previous Saturday morning he complained of pain in the side. (The father indicated the right lumbar region.) He vomited; he could retain nothing. He complained a good deal of headache. The next day he still complained of pain in the side. On Monday the symptoms were the same. The pain and vomiting continued. On Tuesday Dr. Morrison saw the boy for the first time. The pain was in the right iliac fossa, between the umbilicus and the anterior superior spine of the ilium. Dr. Morrison thought that there might be *some trouble in the chest*. (Even with this suggestion, our ideas had already leaped toward acute appendicitis.) There had been no vomiting since Monday. The boy complained of the right iliac fossa—that one spot, and that alone. The left side was not tender. The abdomen was tense; the temperature 104.5°.

On Wednesday, by physical examination, I found the following condition: The pulse was 120; the respiration 40. The temperature was not given. The abdomen was distended and everywhere tender; the tongue was clean; the legs were drawn up; the respiration was noisy and rattling; the cheeks were flushed and the eyes sunken. The general appearance was bad. My notes conclude: "I do not think that he can stand operation as he is."

I made the diagnosis of acute appendicitis with probable general peritonitis, and sent the boy directly to the Massachusetts General Hospital.

<sup>1</sup> This case, numbered 184, has been published in a table of cases of appendicitis in the American Journal of Medical Sciences for January, 1894.



The foregoing record is taken almost verbatim from my notes. In the light of my present experience I should say that two or three symptoms were suspicious: (1) The temperature of 104.5°, which is very unusual in acute appendicitis; (2) the wheezy respiration, which should at least have suggested a pulmonary complication, and which did suggest it to Dr. Morrison; (3) a respiration of 40. At that time I knew less of the significance of rigidity and of exquisite tenderness than I do now, and absolutely nothing of acute abdominal pain in pneumonia and pleurisy. Today the temperature alone would have excited suspicion that the lesion was not acute appendicitis. The least thoracic symptom would have confirmed this suspicion. Furthermore, today I should never omit, especially in children, an examination of the thorax. Had one been made it is safe to say that the patient would not have been operated upon.

On Thursday, June 8, the surgeon on duty, accepting our diagnosis without question, removed an appendix which was thought to be the seat of a "catarrhal inflammation." The boy did well, but after the operation had dyspnea and cough. On June 29 the right thorax was aspirated and pus was withdrawn. On July 3 I resected a rib and drained the thorax. On Aug. 1 he was discharged, fat and well.

It was but natural for the attending surgeon to agree with my diagnosis, for the idea of acute appendicitis, preconceived by myself, was simply transferred to him, emphasized by the very conspicuous abdominal symptoms present. The thoracic symptoms, far from being interpreted rightly by me, were looked upon merely as serious constitutional symptoms secondary to the principal lesion in the appendix.

This case made so profound an impression upon me that I have ever since been on my guard, and have been able in the following cases to avoid the disaster of an unnecessary—not to say deplorable—abdominal operation in the case of a pneumonia or a pleurisy, though I should have withheld, for a few hours, at least, in Case VI, an imperative operation.

CASE II. Malcolm B. E., age four, I saw on Monday, Jan. 1, 1894, with Dr. Fanny Berlin.

This boy had always been delicate. Two years before he had had a severe attack of whooping cough. He was subject every winter to tonsillitis and to bronchitis. On the preceding Wednesday the boy seemed ill. The temperature was, however, normal. On Thursday Dr. Berlin saw the boy. He complained of "stomach-ache." Though the abdomen was flat, Dr. Berlin immediately thought of appendicitis. The only symptom was pain—at one time in the right side, at another in the left. He was coughing badly. The temperature was 101°. The bowels were moving freely. On Friday he was about the same. The lungs had râles, and Dr. Berlin "thought that it was the beginning of pneumonia." There was no complaint of pain and no local tenderness. He remained comfortable until 4 o'clock Friday morning, when he had a temperature of 105° and complained of pain in the left shoulder. There was decided crepitation in the left lung. Every time he coughed he said that his stomach hurt him. He had a great deal of pain in the side (indicating the epigastrium). The temperature was 104° to 106°; respiration, 42. There was a frequent and hard cough.

On Sunday the temperature was 105° and down to 104°, 103° and 102°. The symptoms were more suggestive of pneumonia than of anything else. There was no distention. The amount of urine was sufficient. At 5 p.m. Sunday he was at his best: temperature 102.2°, pulse 120, respiration 36.

At 4 o'clock on Monday morning there was acute abdominal pain. The abdomen was somewhat distended. There was in the appendicular region pain all the time. Dr. Berlin feared appendicitis as well as trouble in the lungs.

I saw the boy for the first time on this day. My notes say: "Cheeks flushed; dullness in right iliac fossa; abdomen full—somewhat prominent—not hard; intestinal sounds heard with stethoscope. Tenderness about as great in one place as another; no dullness; pulse 120. I do not think operation advisable, for I am sure there is no trouble with the appendix. I should think there was some trouble in the appendix if I had not seen the East Boston case (Case I)."

In this case no mention is made of rigidity, except that its absence is implied by the words "not hard." The high temperature was accounted for by the pneumonia, which in this case was early recognized. The only evidence of appendicitis was the pain in the right iliac fossa. This evidence was weakened by its existence at times elsewhere. Tenderness was nowhere exquisite. The abdomen was full, it is true, and everywhere tender, but it was soft. The temperature was in the beginning very high; there was no tumor; the bowels were acting.

The conclusion that the abdominal symptoms were secondary to an acute process in the thorax was inevitable, even though that process was left-sided. The thoracic symptoms were much more pronounced than in Case I, and they were at once recognized and correctly interpreted. The symptoms, making strong the fear of appendicitis, were not characteristic of that disease. The supposition that an acute appendicitis was complicating an acute pneumonia was therefore untenable. It is hardly supposable that one could have operated in such a case, even at that time when clinical experience in appendicitis was comparatively limited.

Dr. Berlin has recently sent me the following note regarding the subsequent course in this case:

"M. E. recovered from the pneumonia from which he was then suffering. For several days after you saw him he continued to refer the pain to the region of the appendix vermiformis. The pain then gradually disappeared. The pneumonia left him in a very delicate condition, so that his parents have ever since been taking him for the winters to different places in California. When I saw him last summer he had improved wonderfully, and looked and felt perfectly well."

CASE III. In this case there was no suspicion of thoracic disease, until in suspected appendicitis I happened to discover dullness in the course of a routine examination of the lungs.

Alice A., age five, I saw Thursday, April 10, 1894, at Lawrence, Mass., with Drs. Dow and Chamberlain of Lawrence and Dr. Conn of Concord, N. H.

A week ago Sunday, while eating dinner, this girl was taken with pain in the abdomen. She left the table and lay down. The pain continued into the afternoon and through the night. On Monday Dr. Dow saw her. She complained of pain and tenderness in the right iliac fossa. The temperature was 104.4° (first suspicious circumstance). The cheeks were not flushed, but pale. She complained of a little head-

ache. The tongue was coated; the bowels were active. The temperature kept up for two days, when the temperature and pain began to subside. She still had a little tenderness, which soon passed away. The temperature went to normal, and she seemed to be convalescing. On Tuesday, after a bad night, she began to have pain again, and the temperature began to rise. Dr. Chamberlain was called in, but could discover nothing abnormal. It was thought possibly an appendicitis, and I was called.

*Physical examination.*—The bowels were tender in the right side along the course of the lower intercostal nerves. There was no dullness or tumor in the abdomen, and no tenderness except in the right side. The right thorax was flat, with tubular respiration and bronchophony.

The diagnosis of appendicitis in this case was clearly unwarrantable. The attending physicians looked upon it not as a likely, but as a possible explanation of the abdominal pain. There was nothing whatever in the case to call attention to the lungs, and I should have discovered the pulmonary lesion only in the course of the routine examination of the thorax. The subsidence of the pain and its disappearance for two days, with sudden reappearance, was characteristic of appendicitis, and, as far as it went, was suggestive of that disease.

Had nothing been found in the lungs, I should have regarded the case as a possible appendicitis. It would have been necessary, however, to assume that there was a rapid absorption from the inside of the appendix, for there were no signs whatever of a localized peritonitis.

The patient made a rapid and satisfactory recovery.

The possible quick infection of the pleura from an appendicular lesion must be considered in connection with a case like this. That a severe intrathoracic infection may follow absorption from a comparatively insignificant focus in the appendix must be admitted. I have seen a large encapsulated abscess between the liver and the diaphragm, accompanying an appendicitis that was progressing very favorably at the seat of the appendix itself. In this case, however, there was no doubt whatever about the existence of an acute infection of the appendix. The earliest and most important suggestion of appendicitis in Case III, as well as in other cases, was pain, and that pain was of such a character as to alarm the attending physician, and to cause not a little disquietude to the consulting surgeon, who ruled out appendicitis. Even with an experience of hundreds of cases of appendicitis of all kinds, he is a bold man who, in such cases, is willing, without careful study and the most searching examinations, to exclude appendicitis, even when the thoracic symptoms have been well recognized.

CASE IV was a boy of four, seen Monday, March 12, 1900, with Dr. Dow of Cambridge. In the years between the last case and this one I had had no occasion to suspect infection of the lungs or pleura as the source of abdominal pain attributed to appendicitis.

This boy had been taken sick on Sunday, March 4, with cough and restlessness. There was a slight laryngeal irritation. The next day he was feeling better—not very sick—simply ailing. On Tuesday he had a temperature of 103°. Dr. Dow could find no trouble

in the lungs to account for the temperature, the only thoracic symptom being rapid respiration. The abdomen was slightly distended, but the bowels had been somewhat constipated. On Wednesday the temperature was normal, and the boy was feeling well. That night the temperature went to 101.5°. Thursday night he was very ill and restless. The bowels were free. Micturition was painful. There seemed to be no especial cause for the illness.

On Sunday, March 11, the boy began to complain of pain in the abdomen when he coughed. Dr. Dow made repeated examinations of the lungs. He could, however, find no explanation for the rapid respiration, "but at the slightest touch over McBurney's point," Dr. Dow said, "the boy complained most vehemently that I hurt him. The bowels seemed rigid." Dr. Dow, from these symptoms, naturally suspected appendicitis, and sent at once for a surgeon.

I saw this boy on Monday, the day following the onset of pain. The pain seemed severe, and was complained of a great deal. The abdomen hurt him when he moved or when he was turned. The temperature was 101.6°. There had been vomiting. Gas had been passed freely. The boy had never had an attack like this before.

On physical examination I found the abdomen moderately distended and tender. The tenderness was general, and rather more marked in the right iliac fossa than elsewhere. There was no rigidity or other evidence of localized peritonitis. The lungs contained abundant râles.

It seemed to me wise to wait either for the complete subsidence of the thoracic symptoms or for the more marked appearance of the abdominal. To operate upon so mild a case of appendicitis with such ominous signs of lung disease would have seemed absolutely indefensible. Indeed, to operate for the abdominal symptoms, even had the respiratory symptoms been absent, would have been, in my opinion, unwise. There was every indication in favor of delay. I therefore advised against operation. On the following day Dr. Dow found a beginning pneumonia, which soon became typical. The abdominal symptom disappeared entirely in two days. The boy made a rapid convalescence from what proved to be a typical pneumonia.

CASE V. The patient, a man of 35, was brought to the Accident Room of the Massachusetts General Hospital on Oct. 7, 1901, as an abdominal emergency. The symptoms were apparently urgent, and the man was prepared for immediate operation.

The history was as follows: "Three weeks ago the patient was suddenly taken with abdominal pain and chills, accompanied by sweating. He vomited and had to go to bed. He was better next day, but had some cough and raised considerable foul-tasting material. During the three weeks which followed he has had chills and fever almost every night, sometimes with vomiting. Most of the time he has been in bed. Has had considerable pain in chest, and cough. This morning he was seized with sudden and very severe pain just in front of the right scapula. This was intense, sharp and shooting in character. The vomiting was quite profuse, and he raised a great deal of phlegm. At no time has he been jaundiced, and he has noticed nothing wrong with stools or urine. The bowels have been regular."

*Physical examination.*—Well developed and nourished. Nothing definite made out in chest. Medical house officer finds no signs. Patient evidently in great distress. Abdomen very rigid, but not tender anywhere; urine negative; blood count 21,000; no tenderness by rectum.

I was asked to see this patient, who had been admitted to the care of Dr. Warren. The abdominal symptoms were marked, but there was something about the physical examination which suggested that the explanation for them might be found in the chest. The most suspicious thing about the case was the absence of tenderness. There was abdominal pain and rigidity without tenderness. I advised deferring the operation, and in this opinion Dr. Warren concurred.

On the following day Dr. Vickery made the diagnosis of pneumonia.

Several suspicious circumstances were conspicuous in this case: The history, from the beginning, pointed toward the chest, though it pointed also toward the abdomen; the sudden seizure, on Oct. 7, of pain in the region of the right scapula indicated a thoracic lesion, or possibly a lesion of the gall bladder. The absence of vomiting was a significant feature, though vomiting is frequently absent in severe cases of appendicitis. The rapid respiration was significant of intrathoracic disease, though this symptom may be present in extreme abdominal pain with tenderness and rigidity. The absence of tenderness was, however, the most significant fact of all. Rigidity without tenderness, even if abdominal pain is severe, should always excite suspicion.

The absence of dullness or tumor was important, for if there had been a localized peritonitis of three weeks' standing, I could hardly have failed to detect a tumor or cake; my inability to detect a tumor, though explicable if the appendix was deeply seated, added materially to the incredulity with which I regarded the diagnosis of appendicitis. Had rectal tenderness been present, with deep pelvic tumor, the diagnosis of appendicitis would have been almost certain, even under the suspicious circumstances already mentioned.

It is quite possible that there was an acute lesion in the abdomen as well as in the thorax. Indeed, the possibility of perforated gastric ulcer or of acute cholecystitis was seriously considered.

The patient, after the development of pneumonia, was transferred to the medical service. On Oct. 13 the sputum became purulent, and contained many pneumococci and influenza bacilli. On the 15th he raised 10 oz. of foul-smelling pus. From this time he gradually improved until his discharge, Nov. 25. His illness was extremely severe. In four weeks he lost some 40 or 50 lbs. in weight.

This case was the most alarming one of all here reported. The abdominal symptoms seemed to demand immediate operation. I do not hesitate to say that I should have advised exploration had it not been for the experience gained in the preceding cases. The possibility of a thoracic origin for acute abdominal symptoms must always be borne in mind when the least sign points toward the thorax. Whenever the history of onset is unusual, or whenever the abdominal examination fails to give the usual combination of cardinal symptoms, it is well to look for the commoner complicating lesions. It is still better in all cases, however plain, to make examinations of the thorax, as a matter of routine.

An illustration of the danger of going too far in conservatism when the symptoms do not quite satisfy the surgeon that his art is demanded, is the following case, which came at a time when my mind was filled with the importance of not opening the abdomen for pneumonia or for typhoid fever.

**CASE VI.** At the close of Dr. Warren's clinic at the Massachusetts General Hospital on Monday, Jan. 13, 1902, a man was brought in from the accident room as an "emergency abdominal case." The hour had expired, and Dr. Warren gave the history somewhat as follows:

Man of thirty. Sudden pain in epigastrium Saturday night. Pain shifted to right iliac fossa. Temperature 100°, pulse 100; white count 11,000. General rigidity and tenderness, but tenderness most marked in right iliac fossa. Diagnosis: Acute appendicitis. Immediate operation necessary.

I was asked to examine. By a brief examination in the minute given me, I was satisfied that the case was acute appendicitis.

On careful examination, after the class had been dismissed, Dr. Warren's attention was drawn to the coated tongue, to sordes on the teeth, and to a general typhoidal look which the patient presented. Careful inquiry into the history showed a two weeks' malaise and headache. The white count was not reassuring. Repeated palpation showed but slight tenderness, and that deeply situated in the right iliac fossa; there was a general muscular resistance rather than a muscular rigidity—a doughy feeling not uncommon in moderate distention. The spleen seemed to me enlarged. The white count was against appendicitis, though not unusual in an overwhelming general peritonitis.

Drs. Warren, Mixter, Brewster and Greenough said "appendicitis" and advised operation at once. Dr. Fitz, too, made the diagnosis of appendicitis. I was opposed both to this diagnosis and to operation. My opinion being based upon the belief that there was no lesion calling for operation, I should have kept the man under observation for a few hours, and should have had a Widal test made. If there was any abdominal lesion, however, it was a beginning general infection, for that alone would explain the blood count, the general muscular resistance and the tenderness.

Operation showed free pus in the abdomen and a perforated appendix. A good recovery followed.

While the patient was being etherized I wrote the following opinion:

"The significance of a general doughy tenderness may be completely misunderstood, especially if it follows an attack of sharp pain in the abdomen—no matter where. Increased general resistance, a white count of 11,000, pulse 100, temperature 100°, without exquisite tenderness, raises a suspicion that the abdominal symptoms may not be dependent upon a peritonitis, localized or general. In this case here today the initial pain was on Saturday night, in the epigastrium. The patient, a man of thirty, had been "going it" for two weeks, with occasional headache. The tongue was furred; the teeth had sordes. There were no rose spots. The spleen was enlarged. Deep pressure was not quite so easy on the right side as on the left. I do not think operation necessary."

Here was an instance in which the diagnosis made, as it were, instantly, was correct, but in which a careful study of the case, continued an hour or more, led me to a wrong conclusion.

It is safe to say that operation gave the man his only chance, and that moments were precious.

Cases like the foregoing, far from adding to the equanimity with which the surgeon decides for or against operation, in an obscure abdominal case, add rather to his feelings of doubt and apprehension.

A similar case occurred several years ago in the town of Holliston. The attending physician, Dr. Haviland, called me to a case in which, he said, "the merest tyro could not but make a sure diagnosis of appendicitis." The history and symptoms suggested to me so strongly an extra-uterine pregnancy that I delayed operation long

enough to make the most thorough preparations for operation—several hours. Under the knife the case proved to be one of acute appendicitis with general peritonitis, and the patient did not recover.

A good rule to follow would be to explore in all cases in which the patient's local condition can be explained as well by a general infection as by any other lesion;—in other words, whenever, on the assumption that the abdominal symptoms are real, the patient without operation will die. If there is no immediate danger—whatever the diagnosis—await in doubtful cases further developments; and finally, never operate when the general condition is so bad that operation cannot but prove fatal.

Applying these rules to another and final case, it will be seen, I think, that the advice against operation was conservative and wise.

CASE VII. Lillian C., age seven years, a patient of Dr. William L. Richardson, I saw on Saturday morning, Jan. 11. She had been sick since the preceding Tuesday morning. She had complained of pain over a single spot in the abdomen. This pain disappeared. She then had very high temperature, with rapid respiration and high pulse, and she had been coughing for two days. The cough then disappeared. In the middle of Friday night she was seized with pain in the abdomen, and complained of suffering very severely. This pain disappeared, and she then complained of an abdominal tenderness which was severe enough to arouse serious apprehension as to the probability of an appendicitis and beginning peritonitis.

Although the case seemed to be mainly thoracic, yet Dr. Richardson felt not a little disquieted by the history of abdominal pain and tenderness. Indeed, there was only too much reason to suspect a beginning appendicitis, perhaps complicating some acute process in the lungs.

On Saturday morning I had the opportunity of examining this child. The abdomen was full, but not especially distended. There was no rigidity. The tenderness was unmistakable and definitely localized in the right side of the abdomen, and especially marked directly over the appendix. The temperature was from 104° to 105°, respiration 40. Although the respiration was not incompatible with acute abdominal disease, and, although the tenderness was, on repeated examinations, unmistakable, it seemed to me probable that the process was entirely thoracic. The whole aspect of the case was such as to make me extremely anxious for the next few hours, during which I was expecting every moment to be called to operate. The most reassuring facts were the high temperature and respiration, which, however disquieting in a pneumonia, were positively welcome in a suspected general peritonitis.

On Saturday evening Dr. Richardson found a suspicious dullness over the lower lobe of the right lung behind, and the next morning there was a well-marked pneumonia of that lobe. The area was circumscribed, and so remained. The crisis came Tuesday morning, when the temperature dropped from 105° to 99°. The respiration and pulse dropped that same evening (Tuesday). Wednesday morning everything was normal, and the child was fast convalescing.

These symptoms might well suggest an acute appendicitis, even in the presence of a pneumonia or a threatening pneumonia. This case resembles very much some of the preceding ones. I have, however, known the abdomen to be opened many times on less evidence of appendicitis than there was in this case, and the appendix found gangrenous and perforated. On the other hand,

I have never seen a case presenting obscure abdominal symptoms of appendicitis with plain symptoms of acute thoracic disease, in which the latter have not been the chief and only cause for the former.

After all, however, it may be asked whether it is well always to be so much on one's guard when acute abdominal lesions are suspected, and especially lesions in which time is of the utmost importance. I can recall a few cases in which my incredulity has been costly—when, for instance, in the fear of finding no lesion, precious time has been lost. One may err too often on the side of conservatism. May not too many patients have lost their best chance of safety for the fear of an unnecessary exploration? He takes a heavy responsibility who advises delay when the symptoms point to a general peritonitis, even if those symptoms are not quite what in typical cases they should be. Furthermore, judging by chances alone, the atypical cases which are really serious abdominal lesions vastly outnumber those which are not. The real cases of appendicitis and of general peritonitis, as compared with those of an atypical typhoid, of a latent pneumonia, or of some other unusual simulating lesion, are a hundred to one. If in cases of doubt the rule is to operate, more lives will be saved than if the rule is not to operate. Skill in diagnosis must be indeed great to omit an unnecessary operation in the one case, and to perform the necessary one in the other ninety-nine.

The diagnosis between acute thoracic and acute abdominal disease is always easy as soon as the characteristic signs of either are apparent. The chief difficulty in making a distinction is to recognize that the necessity for that distinction exists, for the thoracic symptoms are always masked by the more conspicuous and distressing abdominal ones. Once the attention is drawn to the possibility of a thoracic cause, not only for the thoracic but for the abdominal symptoms, an accurate diagnosis is perfectly easy.

## VAGINAL HYSTERECTOMY FOR CARCINOMA OF THE UTERUS.<sup>1</sup>

BY WILLIAM B. PRYOR, M.D., NEW YORK.

It seems to me that in our study and discussion of the minute details of the various operations devised for the removal of cancerous growths we have lost sight of certain essentials (if I may so term them) requisite to success. The most important of these is a consideration of the manner in which unchecked cancer of the uterus tends naturally to extend, together with a knowledge of the localities in which recurrence is most frequently found. It is significant that the localities of natural invasion and of recurrence are the same, namely, parametrium first and vagina second. We must also bear in mind that cancer of

<sup>1</sup> Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Jan. 22, 1902.

the uterus has a marked tendency to remain localized in the pelvis.

The second essential consideration is found in the surgical rule: that no trauma or section should be inflicted upon the involved field during its removal, lest hitherto uninvaded absorbents be opened up for the reception of the cancer elements, and lest severe trauma upon the cancerous growth result in the projection of the cancer elements along the absorbents directly in connection with the cancerous mass.

While operative mortality is not of prime importance in operations upon cancer, a condition in which we operate, not so much for the mere presence of growth, as because of the tendency which cancer has to extend and to recur after removal, any material increase in the death-rate accompanying a chosen operation must be compensated for by such an immunity from recurrence which the survivors enjoy as to warrant the operation.

Lastly, all of these considerations are modified in our choice of operation by very many extraneous circumstances, particularly those relating to the general bodily condition of the patient. In discussing the choice of operation in the light of these so-called essentials, I will dismiss from consideration all those cases of cancer in whom the disease has extended outside the uterus, excepting, perhaps, those with a limited involvement of the vagina. It were manifestly unfair to do otherwise, though the tendency certainly is to apply the vaginal method to the early cases and the abdominal method to those further advanced.

Guided by these important and essential factors, I shall state in what regard I think the vaginal method fails and in what respect it is satisfactory. In order to do this it will be unnecessary for me to enter into any elaborate statistical review of the subject. You all have the recent and rather voluminous literature at hand.

I. The first essential requires that the parametrium be removed together with the upper third of the vagina, in all cases of cancer of the cervix; and in cases of cancer of the body, the parametrium only. In operating upon cancer of the cervix through the vagina there are two great dangers facing the surgeon: he either keeps too close to the cancer in avoiding a wound of the ureter, and is therefore not thorough, or, in trying to obey this first essential to success, he hazards wounding the ureter in his attempts to keep away from the cancer. For it must be remembered that, in dealing with the disease in this locality, hemisection of the uterus and its morcellation, which so nicely enables us to escape ureter wounds, can not be applied.

No incision should be made through the cancer, and such would be necessary in morcellation. We must therefore remove the organs *en masse*. The very great importance of the removal of even fractional portions of tissue away from the cancerous field is shown in the difference between the statistics following the operation in cases in

which the diagnosis is made by the microscope and those following the operation in which the diagnosis is made from even very early clinical signs. In both classes we find apparently absolutely no involvement of the tissues about the cervix, and even the external portions of the cervix may seem to us entirely normal; and yet, after three years, nearly 40% of the first class are free from recurrence, and of the second, few of us believe that 15% are free. It is therefore a question whether or not, in cases of cancer of the cervix, even these earliest, the good statistics can not be improved upon, as well as the very bad, by the routine application of the abdominal operation, which would secure the removal of all the parametric tissue, and during the performance of which the anatomical section would proceed through tissues absolutely normal. But our cases must be somewhat further analyzed.

We find that carcinoma of the cervix in young women has a great tendency to proceed rapidly and to recur promptly. In older women this progress is slower and recurrence less sure. Young women stand prolonged and severe surgical operations better than the aged, for they are not so likely to succumb to complications. For instance, I have lost three cases after my abdominal operation for cancer, one in the third week, from angina pectoris, and two in three days, from nephritis. Such accidents do not follow the vaginal operation, because the tax upon kidneys and heart is not so great. It would seem, therefore, that the abdominal operation which proceeds through uninvolved tissue, which secures preliminary hemastosis, which cuts off the lymphatics before any injury is inflicted upon the uterus itself, and which admits of a broad dissection, is the indicated procedure in young women. The mortality and recurrence are to be here considered. Although not prepared to make a complete report of my abdominal operations for cancer, I may say that I have lost but one woman under fifty years of age from preventive ligation of the internal iliacs and abdominal ablation, and that in no case has recurrence been found in one year. This latter observation is important, because in the vaginal operation from 60 to 80% of all recurrences take place within one year.

On the contrary, the aged, with degenerate vessels and a tendency to less active progress in the disease, owing to degeneration in the lymphatics and epithelial atrophy, are better treated through the vagina. For instance, Janvrin, who performs vaginal hysterectomy only, had 88% free after five years; but only one of his cases was under forty, and only one other under fifty.

When we consider the disease as involving the body of the uterus, the statistics from vaginal hysterectomy are sufficiently good. There are several reasons for this: these cases come for treatment, because of unpleasant symptoms, earlier than do the cervical cancers; they are usually advanced in years, with the tendency to slow progress which age brings; and the operator, not

being embarrassed by the ureters opposite the seat of the cancer, can go far outside the uterus and remove the tissues in which recurrence is likely to take place. But it is a question if it be not advisable to approach cancer of the corpus in the younger women through the abdomen; for we find that although most of these cases occur in women past the menopause, yet in a few it is found in younger individuals, and in them recurrence is apt to be most rapid. You see, gentlemen, that I consider this element of age and the natural history of the cancer as of great importance. Vaginal hysterectomy for cancer of the body of the uterus, for the reasons which I have just given, furnishes an immunity against recurrence after three years, of about 70%.

II. The second requisite is in a way met equally well by both operations, for the cleansing curettage which precedes them can be accompanied by such deep charring of the tissue as will prevent an inoculation of the raw surfaces; but the vaginal operation does not prevent the projection by pressure of cancer elements into the adjoining absorbents, inasmuch as in the vaginal operation much squeezing and handling of the uterus is done. But in the abdominal operation the absorbents are cut off before any force is applied to the organs to be removed.

III. I think I have referred sufficiently in detail to those extraneous circumstances which influence us in the choice of operation. Having entered into somewhat of a philosophical discussion of the subject rather than of the mechanical, I may briefly allude to the technique of the vaginal operation.

In cases of cancer of the cervix, all sloughing and granular material is removed by curette and scissors. I then burn the cancer field with the galvano-cautery until it becomes of a dull gray color. The vaginal membrane is then picked up an inch below the cervix and the vaginal tube incised entirely around its circumference. For this I use scissors and have never employed Mackenrodt's cautery method. I peel up the bladder in front and enter the peritoneum behind, until I can grasp the cervix, together with the vaginal cuff I have formed, with Péan's blunt forceps. The dissection of the bladder is still further continued until the peritoneal sac is entered. The uterus is now anteverted through the vagina and the adnexa delivered. Forceps are applied to the ovarian artery of the left side and the tissues cut to their points. I then attempt to strip the left ureter away from the uterus and secure the uterine artery on the left side. The uterus is now cut away on the left and swung out of the vagina. The above manœuvres upon the right side are now more easily carried out. One method of operating embraces the progressive hemastosis by ligatures. It is seen that I never employ these.

When ligatures are used those portions of the stumps which are left to hold the ligatures become organized. When forceps are employed, not only all tissue internal to the forceps sloughs, but that within their grasp, and some outside also,

comes away. With the forceps at least a half-inch of parametric tissue ultimately comes away which would remain were ligatures used. The forceps are thus more thorough, and I always employ them in vaginal hysterectomy.

In vaginal hysterectomy for cancer of the corpus uteri, the technique is somewhat different. Here it is not necessary to remove a vaginal cuff. The uterus is curetted, and by means of a probe-shaped electrode I cauterize the body of the organ. The operation then proceeds as in cases of cervical cancer.

I find that there is a distinct indication for vaginal hysterectomy in cancer of the cervix, but in a limited percentage of cases. I believe that vaginal hysterectomy is the operation of choice in cancer of the body of the uterus in nearly all of the cases, the exceptions being few. These are the young women — those with pus foci and those with cancer associated with fibroids.

I have, Mr. President and gentlemen, been asked to read a paper upon vaginal hysterectomy for cancer of the uterus. I presume I have been selected to present this side of the question because I am so avowedly in favor of the abdominal method; possibly upon the theory that sometimes a just critic is the most convincing advocate.

#### PATHOLOGY AND PATHOLOGICAL DIAGNOSIS OF CARCINOMA OF THE UTERUS.<sup>1</sup>

BY T. LEARY, M.D., BOSTON.

It is with a great deal of trepidation that I stand before a body of specialists, all of whom are familiar with the splendid work of Cullen on uterine cancer, in an attempt to cover in twenty minutes the pathology and pathological diagnosis of cancer of the uterus.

Three types of epithelial structures are found in the uterus, and each type gives rise to a more or less distinct form of uterine cancer.

The vaginal cervix is covered with a many-layered, stratified, squamous epithelium which is often continued for a considerable distance into the cervical canal. This layer is set almost directly on the uterine muscle.

The epithelium of the cervical mucosa consists of a single layer of cylindrical cells which dips down into the underlying muscle to form deep, tortuous, branching glands. These glands are marked under the microscope by their mucous contents, which stain peculiarly with nuclear dyes, notably hematoxylin, and by the location of their nuclei, which lie close to the basement membrane. There is no sharp line of demarcation between the stratified squamous and cylindrical epithelium, the lower cervical glands emptying into the canal through a surface layer of squamous epithelium. The cervical mucosa is set almost directly on the muscle.

The third type of epithelium is found lining the canal of the body of the uterus. It consists,

<sup>1</sup> Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Jan. 22, 1902.



like the cervical mucosa, of a single layer of cylindrical cells which dips down into a cellular connective tissue overlying the muscle, to form glands, often tortuous, but rarely showing branching. These glands do not produce a markedly mucous secretion, and the nuclei of the cells tend to take a central position in the protoplasm. Normally, the gland layer here does not penetrate the muscle.

I shall consider the forms of cancer which appear in the order of the types of epithelium which produce them.

The squamous epithelium which covers the vaginal cervix corresponds exactly to the epithelial covering of the vagina, bladder, mouth and pharynx. The tumors to which it gives rise appear as nodular outgrowths, which present on vaginal inspection as cauliflower-like masses. Examination of the papillary structures making up these masses will show them to consist of a central stem of connective tissue carrying vessels and covered by a thickened layer of epithelium. Coincident with the outgrowth there is penetration of the underlying muscle substance by finger-like projections of the epithelium which grow in length and breadth and finally coalesce, destroying the muscle as they advance.

On cross-section such a tumor is distinguished by its homogeneity and its rather opaque light yellow color, contrasting with the reddish gray color and fibrous character of the uterine muscle. It is usually possible to mark the limits of the growth almost as exactly with the naked eye as with the microscope.

This tumor, as it progresses, grows in upon its own blood supply,—the internal portions of the growth crowding the blood vessels as they expand until the supply to the surface portion becomes very limited,—so that necrosis and ulcerations appear early. It is this form of growth which fulfils the clinician's requirements in being soft, pultaceous and easily broken down with the finger. The necrosis and ulceration is of course accompanied by hemorrhage and the typical foul discharge. Lymphatic extension is more rapid in this form than in either of the other forms of uterine cancer.

In Cullen's series of 176 cases, which may be considered representative of uterine cancer, there were 123, or about 70% of cases of squamous-celled carcinoma of the cervix.

The form of cancer which arises from the cylindrical layer of the cervical mucosa produces also cauliflower-like growths which may be hidden within the cervical canal or may be present in the vagina. Examination of such a growth shows it to be made up of a series of branching stems of connective tissue covered by a rather thick layer of epithelial cells. These cells no longer resemble the cells found lining the cervical glands; they do not produce much mucus and their nuclei tend to occupy a central position in the cell. The picture suggests that seen in cross-section of the tubal mucosa, the branching processes enclosing

gland-like spaces being analogous to those found in the normal tube.

The bulk of the growth is made up of the connective tissue stems, therefore it is firm and breaks with a brittle fracture. Its blood supply is not encroached upon, therefore it does not tend to become necrotic and ulcerate. Its vessels are well protected, so that hemorrhage does not occur early, unless the growth blocks the canal or is accompanied by hyperplasia of the mucosa at the fundus. This form made up 18 cases of 10% of Cullen's group of 176.

From its character it should be the most benign form of uterine cancer; growth should be local, by expansion, for a long period before metastases appear. The late appearance of hemorrhage, necrosis and odor may be responsible for the failure to make an early diagnosis, and may account for the fact which appears in Cullen's group, that it was the most malignant form of uterine cancer which he met.

Cancer of the body of the uterus takes the form of an adenoma, the gland layer penetrating the muscle tissue and growing in the form of atypical glands, which often show branching or may consist of a series of single glands emptying into a large branching duct. The layers of cells lining these gland structures are usually increased, although almost perfect reproduction of normal uterine glands may occur, the diagnosis of malignancy sometimes depending wholly upon evidence of penetration of the muscle layer.

The more malignant type of adenoma of the body deserve the title of adenocarcinoma, since they tend to produce solid masses of cells in which gland arrangement is scarcely suggested. If the growth occupies the fundus there is usually uniform enlargement; if it arises near the cervix, the greatest enlargement is at that point.

The interglandular septa are slight and the amount of epithelial tissue is great, particularly in those cases in which the epithelial layers are many—the more malignant type. Therefore the growth is soft and the surface layers suffer early from an insufficient blood supply, so that necrosis and hemorrhage occur. In the milder, simpler forms (adenoma) the hemorrhage and necrosis may be more slow in appearing. The mild forms grow by expansion and do not tend to produce metastases early. The malignant forms give rise to early metastases.

The forms of cancer found in the uterus, with the possible exception of squamous celled cancer of the cervix, would be considered only mildly malignant if found elsewhere in the body. The common forms of adenoma arising in the cervix and body closely resemble tubular adenomata occurring in the rectum and ovary. These grow by expansion without lymphatic metastases, oftentimes even to the point when they rupture into the peritoneal cavity. The enormous lymphatic connections of the uterus, as compared, for instance, with the ovary, may account for the apparently earlier metastases in uterine growths.

The most important factor, however, is not early metastases, but late diagnosis.

#### DIAGNOSIS.

*Growths from cervix.*—If the growth is small, a piece from its edge, together with some of the neighboring normal tissue, should be cut out and sent in moist gauze to the pathologist. If the pathologist can not be reached within a few hours, the piece of tissue should be dropped into 80% or 95% alcohol. Most of the failures to diagnose readily cervical growths arise from the fact that too small a piece of tissue is taken or because the tissue has macerated in 30 to 40% alcohol and will not stain.

Curettings should be sent immediately upon a moist gauze sponge, or should be heaped upon a piece of blotting paper and dropped into 80 to 95% alcohol. Be sure to obtain enough material. The diagnosis depends, in most cases, not upon finding a thickened epithelial or gland layer, but rather upon invasion of the underlying muscle.

### ABDOMINAL HYSTERECTOMY FOR UTERINE CANCER.<sup>1</sup>

BY J. C. IRISH, M.D., LOWELL, MASS.

WHEN I received the invitation from your secretary to read before this society a paper entitled "Abdominal Hysterectomy for Uterine Cancer," I was much gratified by the honor done me, but somewhat aghast at the proposition that anything remained to be said about abdominal hysterectomy. Upon second thought, however, it occurred to me that there was a great deal to be said upon this subject, not especially new things, but that we might stop and take account of stock, and see how valuable an asset had been bequeathed to us by the closing years of the last century. We may also consider in what way we can improve our inheritance.

Abdominal hysterectomy, as applied to the treatment of uterine cancer, is a very recent operation, but yet sufficiently established and already employed in a large enough number of cases, to show quite accurately its value, in both the immediate and remote results.

Fifteen years ago this operation, done in the main for fibroid tumors, was formidable, difficult, unsurgical, and attended with a fatality of at least 40%, but by a gradually improved technique all this has been changed, and abdominal hysterectomy has become, in ordinary cases, a simple operation with a very low rate of mortality.

This statement will not apply to abdominal hysterectomy, of course, in the removal of fibroid tumors that pack the pelvis and extend between the broad ligaments or distort in various directions the pelvic viscera; nor in some cases of extensive inflammation of the pelvic structures, with widespread adhesions; neither will it apply in cases

of cancer of the uterus in which the disease has invaded the parametric tissues and pelvic glands; but in those cases of cancer involving the uterus alone, whether of the body or cervix, it is a very simple and attractive operation. There is simply spread out, under our fingers and before our eyes, with unvarying precision, precisely those structures which we wish to remove and those which we must avoid. It is absolutely free from any unexpected difficulties, and every detail of the operation is so simple and precise that any sort of accident or false step is practically impossible.

From such an operation we would logically expect uniformly successful results so far as the immediate outcome of the case is concerned; and, barring a few out-of-the-way accidents, with cancer simply confined to the uterus, the immediate recovery of the patient always follows.

Under the conditions I have laid down, I believe the operation is attended with less than 5% fatality. Therefore, in the radical treatment of uterine cancer, our one surgical resource in an operative way leaves very little to be desired. It is more precise and more competent to meet the indications than are the operative procedures for cancer in most other parts of the body.

In doing abdominal hysterectomy for cancer of the cervix, there are certain modifications of the details of technique that I have found very useful and have presented on another occasion. They make the operation somewhat easier and more complete, and I feel warranted in giving a repeated description of them at this time. The vagina having been rendered as aseptic as possible, in the preparation of the patient, as a preliminary step of the operation, I amputate the neck of the uterus close to the vaginal attachment; this is done in all cases, whether the disease of the os is extensive or slight; then, if infection has extended along the mucous membrane above the amputation, the uterus is packed; if not, the packing of the cervical canal is unnecessary. Then a thick roll of gauze, to absorb and check any hemorrhage, is applied to the cut cervix, and protrudes from the vulva. This is removed before the vagina is opened from above.

This, you will note, is an entirely different procedure from the so-called combined vaginal and abdominal operation; for in the latter the vagina is separated from the cervix and the uterine arteries are ligated. In my own experience, this preliminary amputation of the cervix has in several ways seemed to be of great advantage.

In the first place, the procedure occupies but two or three minutes, and we are able to remove rapidly and thoroughly the whole or a larger portion of the infected tissues. Then, by packing the cervix, if necessary, we avoid all danger of infection in removing the uterus through the abdominal incision.

The great advantage, however, of this step is in simplifying and shortening the time of the abdominal operation that is to follow. The time required in dissecting out the uterine neck is

<sup>1</sup> Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Jan. 22, 1902.

saved, and this very often is much the most difficult part of the operation.

The advantages of this procedure are very great, especially in those cases where the cervix has become enlarged and fills the whole vagina. After the broad ligaments on each side have been divided and the uterine arteries ligated, the dissection closely hugging the vaginal walls on all sides should be extended down for a considerable distance; then, by a steady and forcible traction upon the uterus, one can draw the vagina well up within the pelvis, and in this way we can remove a large portion of the vagina. The importance of the free removal of the vagina at once occurs to us when we recall the frequency with which recurrence first shows itself in the vaginal scar.

Three years ago I reported twenty-five cases of abdominal hysterectomy for cancer of the cervix, my entire experience from Oct. 1, 1893, to May 1, 1898; to that list I have now ten cases to add, making the whole number thirty-five. Of this number the operation was not completed in three cases, on account of the extent of the disease. There were three deaths from the operation; in two cases death followed an extensive dissection of parametric tissue and infected glands up to the pelvic walls on both sides. In the third case the patient died suddenly of acute mania at the end of seven days after the operation, which was a simple and early one. It was one of those accidental deaths which occur occasionally in abdominal surgery, and for which the operation does not in any way seem responsible.

Counting in this death, which ought to be omitted, the rate of fatality is about 9%. As to the immediate result, this is a somewhat higher percentage of deaths than vaginal hysterectomy would give. But, on the other hand, the list includes at least a half-dozen cases in which the latter operation would not have been undertaken, and two of the three deaths occurred in patients with very advanced disease; therefore, we may correctly claim, so far as this small number goes, that the death-rate by the abdominal operation is no higher than that which attends the vaginal.

It was formerly claimed that in cancer of the cervix the disease very rarely invaded the pelvic lymphatics or glands, except in its last stages.

Out of the thirty-five cases in this report, I found cancerous infection of the parametrium or pelvic glands, or both, in thirteen instances, and my experience in this matter is entirely in accord with the recent investigations of other observers. I suppose we find the explanation of this error in the fact that, when vaginal hysterectomy was the only radical operation done for cancer of the cervix, these infections extending out toward the pelvis were rarely discovered, as they were in the main hidden from view. In seven of these cases of infection of the pelvic glands, the disease of the os and cervix was not apparently extensive or of long duration; in fact, both their history and clinical aspect would have classed them in the list of early operations.

Oftentimes, in cancer of the breast, with a small, movable bunch, without any distinctive characteristics of malignancy, the axillary lymphatics and glands will be found to be involved.

In cancer of the cervix, the invasion of the pelvic lymphatics and glands is analogous; this extension of malignancy may occur in the early as well as in the later stages of the disease. In over one-third of my thirty-five operative cases, parametric tissues, lymphatics and glands were involved, and in seven of these the disease of the cervix, as judged by the history of the patient and clinically, had been of short duration and apparently of very limited extent. In these seven cases it was absolutely impossible to determine before operation whether or not the disease had extended beyond the cervix.

Now, if the pathological conditions of my cases in miniature represent the conditions that exist in general in this disease, it is at once apparent that vaginal hysterectomy is an operation entirely inadequate to deal radically with cancer of the cervix. I believe, therefore, in this connection, that vaginal hysterectomy should be entirely discarded, and that abdominal hysterectomy is the only logical resource left to us.

Of the thirty-five cases, in three the operation was not completed and there were three immediate deaths, leaving twenty-nine who recovered. The after-history of these patients, only in a very imperfect manner have I been able to follow; still, I know enough of the ultimate results to positively deny that cancer of the cervix is such a hopeless disease with regard to permanent cure as several distinguished surgeons are now claiming. From some of the papers and discussions before medical societies within the last year or two, one would be almost led to believe that cancer of the cervix was practically incurable; in fact, Dr. Baldy says this, and attempts to show by statistics that the permanent cures are less than 5%, and affirms that 2% would come nearer the truth. While the after-history of these patients is discouraging enough, it certainly is not so bad as that, unless my small personal experience is exceptionally fortunate. What success I have had may not be entirely due to good luck, either, for I very carefully and laboriously dissected out the parametric tissues and pelvic glands along the internal iliac and ureter when they were perceptibly involved. In two or three cases the invasion was so extensive that I was unable to complete the dissection. Although I have never ligated the internal iliac arteries, I have still done a pretty radical operation; but it has been criticised by Dr. Pryor as not being sufficiently so.

Of these twenty-nine cases, there are four that I know are now living and well, who were operated upon from five to eight years ago. Ten cases were operated upon between Jan. 1, 1896, and May 31, 1898, that is, from four and one-half to six and one-half years ago. Two of these I know are living and well today, with no recurrence. Three have died from recurrence of the

disease. Present condition of the others is not known.

Now, of the ten cases done between May 1, 1898, and Jan. 1, 1902, the after-history, so far as I have been able to obtain it, stands as follows: One case done Feb. 5, 1899, no return March 1, 1901. No report from the patient since that time. Recurrence has taken place in four cases. After-history of one unknown. No recurrence as yet in four cases. These instances, however, are too recent to be of any value as to the remote results of the operation. Of the entire twenty-nine cases we have six that have lived from five and one-half to eight and one-half years, without any recurrence. That is, we have about 21% cured, that we may fairly claim as permanent recoveries. Now, if all the remaining twenty-three had died of recurring cancer, our percentage of permanent cures would still be 21; but, as a matter of fact, during this period of eight and one-half years, some of these patients have died of other diseases without any recurrence of cancer; the after-history of others is unknown, and in ten of them the operation was done so recently that we take no account of the result. Now, would it be unreasonable to presume that one, two or three of this number may have been permanently cured so far as cancer is concerned? If such were the case, this percentage of permanent recoveries would be very considerably increased to the credit of abdominal hysterectomy for cervical cancer.

I am presenting these statistics in as favorable a light as I can, in protest against the pessimistic trend of much authoritative teaching today, that cervical cancer, with rare exceptions, is an incurable disease. This remonstrance is the one main object of my paper tonight. This teaching, I believe, is seriously erroneous, and I know it is very unfortunate. If the profession at large become persuaded that cervical cancer is practically incurable, all radical operations would be discouraged. Physicians will even forget the months and years of comfortable life that a radical operation affords these unfortunates, even when it fails as a permanent cure. Thus, the progress in the treatment of cervical cancer that abdominal hysterectomy has already attained, and all that it gives promise of for the future, will get a serious set-back. During the same period of time (namely, from Oct. 1, 1893, to Jan. 1, 1902), which includes the thirty-five operations for cancer of the cervix, I beg to call your attention to fifteen cases of abdominal hysterectomy for cancer of the body. Thus, of the fifty operative cases for malignant uterine disease, fifteen, or nearly one-third, were instances of cancer of the uterine body. In one case the cancer was associated with fibroid tumors. In four cases fibroid tumors themselves had become malignant. One of the five died from the operation. One, two years after, from recurrence. One, about one year later, from recurrence. One died five years after operation from some brain disease; no recurrence. One, well four years after operation. Of

the remaining ten, one died from operation. One died of cancer of the cecum six years after operation. One died two years later from recurrence of disease. One, subsequent history unknown. Six now well; no recurrence. Therefore, in the ten uncomplicated cases of carcinoma of the body of the uterus, there was no return of the disease in 80%. This ratio of recovery corresponds closely with the experience of other surgeons; but adding those five cases complicated by uterine fibroids, the percentage without recurrence would be sixty-six.

Hence, in uncomplicated carcinoma of the body, there is given about 75% of permanent cures. These results, so exceptionally favorable when compared with operations for cancer in other parts of the body, are due to the anatomical relations of the uterus, and to the fact, except when the malignancy begins in an existing fibroid, that it attacks the endometrium, which is isolated from everything else by the thick uterine muscle.

The disease, therefore, is at first very much localized and only extends its infections late in its course. The relative frequency of cancer of the body as compared with cancer of the cervix is much greater than has been supposed, if my own experience indicates generally the ratio that obtains between the two. That is, in fifty operable cases of uterine cancer, the disease in fifteen instances was located in the body.

Now, from the standpoint of our results in the treatment of uterine cancer of the body, abdominal hysterectomy fulfils all operative requirements, and whatever advance we make in treatment must be in some direction outside of operative procedures. And I believe the same may be said, too, of this one radical resource of ours when applied to the treatment of cervical cancer. Certainly the only improvement we can hope for in an operative way will be in a wider dissection of pelvic lymphatics and glands than many surgeons, including myself, now make.

Therefore, any increased success in the permanent cure of uterine cancer will come from earlier diagnoses and earlier operation, rather than from any improvement in surgical procedure.

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#### THE SURGICAL ASPECTS OF CARCINOMA UTERI, COMPLICATING PREGNANCY. LABOR AND THE PUERPERIUM.<sup>1</sup>

BY CHARLES GREENE CUMSTON, M.D., BOSTON,

*Vice-President of the American Association of Obstetricians and Gynecologists, and Honorary Member of the Surgical Society of Belgium, etc.*

OBSTETRICIANS have in the past formulated the rule that a pregnant woman afflicted with carcinoma of the cervix was practically lost to all resources of medical art, and they argued that as the pregnancy would in most cases go on to

<sup>1</sup> Abstract of paper read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Jan. 22, 1902.

term, everything should be sacrificed to save the offspring, and that an operation on the mother was out of the question. But as a surgeon I would reason as one, and I believe that carcinoma of the cervix, when diagnosed and operated on in time, that is to say, before any extension beyond the uterine tissues has occurred, will give a long survival and a prolonged, if not to say complete, cure, and in this paper I shall endeavor to demonstrate that radical operations are indicated in a very large per cent. of these cases, thus reversing the obstetrical ruling.

A pregnancy complicated by carcinoma of the uterus is an eventuality of far less frequent occurrence than that produced by fibroid tumors of the uterus or ovarian cystoma. Generally speaking, carcinoma of the cervix occurs at a late date, when the genital destiny of woman is near its close.

Out of 15,000 labors Winckel met with carcinoma of the cervix 8 times, while Stratz, out of 17,900 labors, met with this complication 5 times during pregnancy and 7 times during labor. Of 9,000 labors occurring in the Moscow clinic, Sutugin met with carcinoma of the cervix in 2 patients.

Cohnstein collected 127 cases of pregnancy complicated by carcinoma uteri, in 21 of which the malignant growth had been present from several months to a year before pregnancy had taken place, and the same author gives the following table relative to the age of the patients: Patients from 27 to 33 years of age, 16 cases; from 34 to 37 years of age, 19 cases, and from 38 to 49 years of age, 23 cases. In some of these cases the commencement of the malignant growth coincided with a pregnancy that was already under way.

Out of 157 cases which I have collected, 16 patients were under the age of 30 years, the youngest being 21, 75 were between 30 and 40 years of age, while 18 were over 40 years of age.

In a considerable number of reported cases where nothing surgical was done, and where delivery occurred spontaneously or with the aid of forceps, the mothers have died septic, some presenting metastases in the joints, etc. When left alone the gravity of the prognosis in these cases is self-evident, both for the mother and child. The maternal mortality is greater when labor occurs at term, and out of 60 cases collected by Chantreuil, 25 of the mothers died, while in West's collection, amounting to 75 labors complicated with carcinoma uteri, 41 of the mothers died. For some authorities the maternal mortality exceeds 48%, and in 126 cases Cohnstein found it to be as high as 57%. In the more recent statistics due to Herman, the maternal mortality was not quite so large, it being 30% out of a total of 137 cases.

The prognosis for the child is still more unfavorable, and according to Herman, 50% died out of a total of 128, while Cohnstein's tables show an infantile death-rate of 63.8%. Of the children born alive 50% died during the first 24

hours, and 8 of the remainder died within the first 9 days following delivery.

According to Passeroro, carcinoma of the uterus will give rise to miscarriage in 40% of the cases, while Sutugin estimates that it only arises in 12%.

I now desire to direct your attention to the methods which the surgeon should follow when an operation has been decided upon, and in the first place we would put the question as to whether we should operate in cases of carcinoma of the uterus complicated by pregnancy. It is to be understood that in this paper I only have in mind the radical operations, that is to say, those which sacrifice the child in order to give the mother all the possible opportunity for a cure, and I will leave aside all partial operations which have the pretension of removing the neoplasm, and at the same time not interfering with fetal life. As far as I am able to see they usually utterly fail in their end, they are harmful to the fetus, and the mother derives little or no benefit from them. Stratz, it is true, has mentioned some cases where a cure has apparently been obtained by these procedures, but in every instance miscarriage took place, so that it would appear to me more reasonable to interrupt pregnancy in the first place and then perform a radical operation, which will, at least, give the mother a chance to obtain a more permanent cure.

Given a case of carcinoma of the uterus complicated with a pregnancy in its early stages, that is to say, with a fetus still non-viable, what shall be done? Should the child be sacrificed, and the patient operated on, or should we allow the pregnancy to continue? All cases are certainly not alike, and, in the first place, we should make a distinction and divide them into two classes, in the first of which we will place those cases where the neoplasm is of slight extent and limited, while in the second class the carcinomatous infiltration is already considerable, and there is little hope that the growth can be removed *in toto*.

In those cases of operable carcinoma the neoplasm may be limited to the cervix or have only slightly invaded the culs-de-sac without involving the broad ligaments; in this case there is no doubt in my mind but what an immediate and radical operation should be performed. From a large number of statistics of total vaginal hysterectomy compiled by Richelot, Olenine, Pozzi, Bouilly, and Routier, it is self-evident that carcinoma of the uterus may be radically cured. The problem that we have to consider is that, if total hysterectomy is performed the child will be lost, but we may hope to save the mother; but if, on the contrary, we allow pregnancy to continue, we may hope to have a living child, but it practically means that we abandon the mother to a very rapid death, and I believe that, under these circumstances, no matter what age the pregnancy may be, total extirpation should immediately be resorted to. I believe that as long as there is any chance of curing the mother we should not

hesitate to sacrifice the fetus, whose life is, for that matter, very problematic.

This has been, I believe, the action followed by all recent operators, no matter what affection may have complicated a pregnancy, and when gestation is a danger for the mother under any circumstances, the sacrifice of the child is never a consideration. And even when the result of the operation is only problematical, as in the case of women under twenty-five years of age, I think, nevertheless, that we are in the right to interrupt pregnancy and operate on operable cases as early as possible. With such a fearful disease for the patient, it is certainly humiliating to be obliged to admit that we are vanquished, and the happy results that have been obtained, certainly will allow one to hope that the enterprising surgeon will in the end become master of this disease.

We will now consider those cases where carcinomatous infiltration is so extensive that there is no hope of removing it completely. What should be the proper surgical action to take under these circumstances? In reply to this I would say that I think if an operation is undertaken, the child is of necessity sacrificed and the mother will not receive at the most the benefit of several months of life. If, on the contrary, pregnancy is allowed to continue, the possibility of a living child may be hoped for, but the neoplasm will rapidly extend and soon kill the mother. Under these circumstances I believe the interests of the child are alone to be considered; but this implies that we abandon the mother to her fate. A radical operation performed under these conditions would be of benefit to the patient because I believe that it is fully established that pregnancy is a very serious complication of carcinoma of the uterus.

I would add and reiterate the statement that, when there is the slightest chance of radically removing the growth and giving the mother a new lease of life, it is the duty of the surgeon to interrupt pregnancy; but it appears to me that in those cases where only a few months of life are left to the mother, the balance should be entirely in favor of the child's life, even although this may be most uncertain.

Woman has a social rôle to fulfill, and it carries with it very serious dangers, from which she cannot withdraw unless it is a question of life or death to her. I consequently believe that a greater rapidity in the increase in the carcinoma is not a sufficient reason to sacrifice the life of the child. Now, it has been fairly well demonstrated in a general manner that in carcinoma of the pregnant uterus the child has a certain number of chances to be born alive; it will also be noticed, if each reported case is examined separately, that there are cases in which the neoplastic infiltration, with all its attending complications, becomes established so promptly that the mother will die before the end of her pregnancy, and also the fetus often dies during labor. In this case, whether or not an operation is undertaken, the child is lost, and, on the other hand, if the surgeon interferes the mother may be very greatly relieved. It is true

that the intervention will be incomplete, but it should be undertaken because the carcinoma, on account of its special malignancy in pregnancy, should naturally be treated as a complication in order to keep the patient alive as long as possible.

Now, on what basis can we affirm that a malignant growth of the cervix is operable or inoperable, and that the child may or may not live? We are here dealing with a problem which is impossible to answer in a general way, because each case will present its special indications and the treatment to follow is of a necessity left entirely to the clinical good sense of the surgeon.

Every operation undertaken for carcinoma of the uterus should fulfill the two following conditions, namely, to be easy of execution and devoid of as much danger as possible, and, secondly, it must remove the entire neoplasm. I will now examine what is, of all the operations, the one which best fulfills these two conditions, taking, in the first place, the one adapted to patients who have not exceeded the sixth month of gestation, and, secondly, those who are from six to eight months pregnant.

During the first six months I have no hesitancy in making this statement, that total vaginal hysterectomy is the operation of choice. I have pointed out that this operation presents few dangers, because in every reported case the patient recovered. I also found that in several recorded cases the patients have remained alive, in good condition, for a number of years.

I am perfectly willing to admit that vaginal extirpation of the uterus does not always give a sufficiently large field of operation to allow the surgeon to remove all the tissues invaded by the neoplasm freely. Consequently, abdominal extirpation may be preferred by some; but the operative difficulties and the danger to which the patient is exposed are certainly far greater by this method, and I believe that usually total vaginal hysterectomy should be selected during the first six months of pregnancy.

When pregnancy has gone beyond the sixth month, the uterus has attained such a size that it can only be removed with difficulty per vaginam, and under these circumstances an artificial extraction of the fetus, immediately followed by vaginal or abdominal hysterectomy, must be resorted to, or Durhssen's operation may be selected. From a study of a large number of reported cases it will be found that vaginal hysterectomy preceded by an induced miscarriage is a source of danger for the mother during the expulsion of the fetus, and that much precious time is lost while awaiting involution of the uterus to take place; and in spite of the weighty opinion of Olshausen, I believe that this procedure should be completely rejected. It would appear to me that total abdominal hysterectomy performed with care may give excellent results, and it also gives a sufficiently broad field of operation, so that the surgeon may make a very complete extirpation of the neoplasm.

Vaginal sectio cesarea, followed immediately by hysterectomy, may be resorted to, although this



operation certainly offers much less ease for the surgeon to remove all the infiltrated tissues, but it certainly presents fewer operative dangers. The cases which have been published up to date are too few in number to allow us to draw any exact conclusions.

In my case of carcinoma complicated by pregnancy, I resorted to Kraske's operation for the extirpation of the growth, and I did so because the upper third of the vagina being involved in the pathologic processes, I desired to freely extirpate the canal. I am not an enthusiast concerning Kraske's operation, nor am I greatly in favor of the parasacral route, and I fully realize their limited field of usefulness, but both of these methods are generally overlooked, and still they may, in some few instances, register a success where vaginal or abdominal hysterectomy would prove a decided failure. On two occasions I have attacked the uterus by the sacral route, and I have never regretted having done the operation, but on several occasions I have been sorry that I did not employ it. The sacral route is particularly useful for complete resection of the vagina and also in those cases where a slight amount of neoplastic infiltration has already extended into the broad ligaments. I should advise those operators who are not versed in general surgical technique to avoid this operation, as it will prove both difficult and unsatisfactory in their hands, but to the general surgeon it is not, as has been upheld by some, a formidable procedure.

In conclusion I would sum up as follows:

If the carcinoma can be radically removed the life of the mother alone is to be considered. Up to the beginning of the sixth month of pregnancy vaginal hysterectomy is the operation of choice, but after this period is passed, abdominal hysterectomy or Dührssen's vaginal Cæsarean section, followed by hysterectomy, are indicated.

When the neoplasm is inoperable the life of the child must be considered, but if the progress of the growth is such that the mother rapidly becomes cachectic, thus compromising the fetal vitality, pregnancy should be interrupted. Palliative treatment only should be instituted, because partial operations on the neoplasm usually produce miscarriage and the mother is not materially benefited by them. Cæsarean section at term may be done, but when the uterus is left there is danger of septicemia, and consequently Porro's operation is the one of choice if the periuterine tissues are not infiltrated to such an extent as to render this procedure dangerous.

THE President has returned to the Senate the bill recently passed by Congress providing that medical schools in the District of Columbia be given the bodies which have been interred in Potters' Field, for anatomical research. Under the bill, the Army Medical Corps was allowed the same rights as the medical colleges of the District, but no provision was made for the navy. The Secretary of the Navy has requested that this be corrected.—*Philadelphia Medical Journal*.

## THE TREATMENT OF CASES OF CARCINOMA UTERI NOT JUSTIFIABLY TREATED BY RADICAL OPERATION.<sup>1</sup>

BY ALBERT H. TUTTLE, M.D., CAMBRIDGE, MASS.

WHAT a picture this title recalls to one who has had much experience in the care of uterine cancer—the long-drawn-out suffering, racking pains, foul discharges, alarming hemorrhages; the unceasing irritation and discomfort that follows urinary fistulæ, the rectal distress—almost unbearable at times—when certain complications of that organ arises; the weakness, emaciation and cachexia; steadily progressive, with no means at our disposal to stay a termination of the disease which, before it arrives, is usually looked forward to as the only goal of relief for this earthly suffering!

Our indications for treatment are presented in this clinical picture of the disease. When we have a hopeless case to deal with, it is obviously our first duty to relieve suffering. The means at our disposal are medical and surgical. We must rely principally on the judicious use of opiates to combat the pain and irritation. Small doses should be used as required, and in order to obtain the longest continued effect from a given dose it should be administered by the rectum. Other drugs, such as phenacetine and the coal-tar products, may be tried, although I must admit that personally I have not obtained satisfactory results from the same.

By surgical means and local treatment we can keep down cauliflower growths and painful granulations, purify the secretions, prevent auto-infections and allay the irritation of neighboring parts that have been soiled by the acrid discharges. The intention of the local treatment is to maintain, as far as possible, a clean granulating condition of the ulcerated surface. If the patient's strength will admit it, she should be curetted under ether, with a sharp instrument, when the excrescences attain any size of prominence, and as a part of the operation the base of the growth should be treated with a caustic, such as tincture of iodine and carbolic acid, or a saturated solution of chloride of zinc, applied on a pledget of cotton, and packed into the cavity of the ulcer. This application may be repeated several times. The vaginal walls should be protected by vaseline and gauze. Considerable hemorrhage usually accompanies the curettement, but ceases spontaneously. The ulcer can usually be kept clean by the use of dilute hydrogen peroxide, injected slowly,—the patient lying with the hips elevated,—and followed by a suppository of cocoa butter containing a couple of grains of iodoform. By the use of cocoa butter suppositories the irritation of the vagina and tissues about the itroitus is prevented or allayed.

Hemorrhage is an early as well as late manifestation. It may arise early from the uterine mucosa, in the form of a semi-menstrual disorder,

<sup>1</sup> Read before the Suffolk District Medical Society, Section for Obstetrics and Diseases of Women, Jan. 22, 1902.

similar to the metrorrhagia frequently associated with uterine fibroids and retrodisplacements. Again, it may come from broken-down granulations, and, finally, from ulcerations of the uterine vessels. I have had no experience with this latter form. The first two varieties are of frequent occurrence, and, as a rule, are practically treated with the curette and cautery. Rarely, it may be necessary to resort to packing or chemical hemostatics.

The complications of the bladder are often of the most distressing nature, as well as the most difficult to relieve,—in fact, in many instances treatment seems to avail us little. A fistula may form between the cervix or vaginal wall and the base of the bladder. There is absolutely no surgical means, at present known, for the closure of this opening, and the urine continues to dribble through it as long as the patient lives. The mucous membrane of the vagina and the skin about the buttocks are liable to become ulcerated from the continuous maceration. The parts become more painful, until just before death the life of the patient is one of abject misery. Artificial drainage of the bladder through the urethra or fistulous tract is impractical. The patient lies huddled up and dislikes to move, owing to the pain and discomfort it produces. Examinations and local treatment, except under ether, are imperfect and productive of great suffering. Under these circumstances, one can do little more than to keep the patient half-way dry, grease the skin and parts exposed to irritation with a soothing ointment, and administer opiates sufficient to control or modify the pain.

The rectal complications are often of a distressing nature. The bowels should be kept open by saline cathartics. Stricture of the bowel with complete occlusion, though frequent in cancer originating in the bowel, is very rarely a complication of uterine cancer.

As the disease extends into the vaginal tissues, a marked infiltration follows, often reaching to the perineum and tissues about the rectum. The thickened parts are engorged with blood, often crack and become extremely sensitive. The condition is treated with cleansing solutions, hot fomentations and bland unguents.

Such, in brief, is practically all we can do at the present time for the relief of this class of patients.

Before closing my remarks, I would like to say a few words in regard to a line of investigation which seems to me to open up the principal route for advancement in the treatment of this disease: I refer to the hypodermic treatment with various chemicals, such as oils, alcohols, etc.

With our advancement in the knowledge of micro-organisms, there has been an attempt to associate the origin of malignant growths with these causes of disease, and could it be shown that they took an active part in the production of this disorder, a local antiseptic or constitutional method of treatment would be a simple, logical and rational conclusion. The history of cancer

does not admit of such a conclusion, however; neither has microscopical research disclosed any such cause, and, in matter of fact, we know very little more today than did our ancestors in regard to the active influences productive of this disorder.

Some years ago, while working in the marine laboratory of Professor Agassiz at Newport, on a study of the life history of *lunatia heros*, I had a chance to observe changes in growth and development produced by strange and unfavorable environments.

Affected by abnormal temperatures, aëration, etc., the eggs of *lunatia*, instead of undergoing their normal cleavage and development, broke up into erratic forms, hardly any two of which appeared alike. The cells, in part, were wanting in all power of cohesion, and floated about in the nidus either singly or in bunches of variable size. In other instances, double monsters were formed or the individual took on unnatural shapes. The law by which like produces like was completely broken and a state of anarchy prevailed which ended in the early destruction of the animal or its reduction to a primitive form. At the time, I believed the cause of these changes was due to unhealthy surroundings, and I am still inclined toward this belief. Whether or not the depressed vitality of the embryo allowed the introduction of other elements which would act as secondary causes to these changes, such as the ingrowth of fungi, I am not prepared to say. In certain of the egg cases *mycelium* was found.

My observations on *lunatia* embryos has inclined me toward the theory that cancer is the result of a change in the environments of a cell or group of cells by which their normal nutrition is affected, and which results in their active proliferation, contrary to the natural laws of growth. By this abnormal multiplication they become a band of outlaws that war upon their neighbors, and finally end in the complete annihilation of the body. Once a cell, or group of cells, has broken loose from the laws that bind it to the animal whole, the progeny inherit the ban of its parent and continue to work out the war of destruction. Such a theory of the origin of cancer harmonizes well with facts, namely, that the growth arises in certain organs at a time when their functional activity is diminishing or has already ceased; that it often starts at a point subjected to continued irritation; and, finally, that hereditary influences play an important part in their causation. If we adopt such a theory of the origin of carcinoma, we must look upon the individual cells making up the neoplasm as foreign bodies and hold them singly in the same relation to the body as foreign elements introduced from without, such as bacterial or amœboid forms of life.

A close study of the natural history of the disease shows that it simulates in many ways the progress and development of certain types of bacterial infections, that is, it travels along the lymphatic vessels, affects glandular enlargements,

destroys parenchymatous tissues, and is rapidly reproductive.

There are many other clinical and pathological facts that might be brought forward in this comparison of the cancer cell and protoplasmic monads, but what I have mentioned is sufficient to show that a method of treatment by hypodermic injections of antiseptic fluids is of possible value.

Today the operation for cancer of the fundus uteri by total hysterectomy is of positive value, the number of recurrences of the disease elsewhere being about 50%, or less if the operation is performed early; but this does not hold true for the cervical form, and I doubt very much if there is over 10% of recoveries without future recurrence. Under these circumstances, we have very little to hope for in the advance of treatment for carcinoma uteri unless it comes from constitutional or local medical methods. The outlook is discouraging, and we should, therefore, encourage in every way possible investigation and experiments along this line.

### Clinical Department.

#### MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

(Concluded from No. 15, p. 385.)

REGULAR meeting, Dec. 20, 1901, DR. C. B. PORTER in the chair.

DR. C. B. PORTER presented photographs of a case of what he would call

#### OLD-FASHIONED OVARIAN TUMOR,

having reference to the size which it had been allowed to reach before seeking surgical relief. Before operation the patient turned the scales at 305 lbs., and after she had been convalescent some weeks she weighed 167 lbs., a difference of 138 lbs. (Figs. 1 and 2.)

DR. F. C. SHATTUCK reported a case of

#### CAISSON DISEASE.

I have to present a man who came in yesterday morning (a case of caisson disease) from the East Boston tunnel. He is a healthy young man, and this was his first experience in working in compressed air. He went on at 8 o'clock in the evening and came out at 5 o'clock the next morning. He had food at 12 o'clock. He was ten minutes in coming out. At least five minutes for each atmosphere should be allowed in the change. Within fifteen minutes of the time he got out he had horrible pains in his knees and ankles, and could not stand up. He was brought into the hospital very much prostrated, suffering a good deal. There was no true paralysis. He could make every motion. His legs were so weak that he could not stand. He had a hypodermic of morphia and is doing very well.

I am not familiar with these cases and I have to refresh my memory about them. I see that Osler says the symptoms never come on under three atmospheres. Herter says rarely under two.<sup>1</sup> He was the only new man in the gang; all the rest stood it perfectly well. He had never done such work before, and he was on duty too long. Prognosis is good. It is one of the milder cases.

DR. WARREN: What is the theory of this affection?



FIG. 1. Old-fashioned, large ovarian tumor. Before operation.



FIG. 2 (same as FIG. 1). After operation.

DR. SHATTUCK: The theory is, that under the compressed air the blood absorbs gas, perhaps nitrogen, which is released on coming out and perhaps damages the nervous tissue. In fatal cases myelitis has been found.

DR. HARRINGTON: Do all men suffer who work there?

DR. SHATTUCK: No, I think not. They ought to start in gradually. This is the first time he ever worked there, and he worked eight hours and was too quick in coming out.

DR. SHATTUCK also reported a case of

#### NEPHRITIS WITH ORBITAL HEMORRHAGE.

<sup>1</sup> I am informed that the pressure in the East Boston tunnel varies from 24 to 28 lbs. with low and high tide. This is, of course, less than two atmospheres.

I want to mention briefly two cases, one of which I cannot show because he is dead, and the other because he is too sick. One of them was a case of nephritis, apparently an acute exacerbation of a chronic nephritis. The only remarkable thing about him was that he had orbital hemorrhage, the hemorrhage extending under the conjunctivæ and under the cornea. It was in one orbit when he came in and afterwards extended into the other. I have never happened to see that before in cases of nephritis. Dr. Cutler said he had never seen it. Dr. Cheney said he had seen it once.

DR. SHATTUCK also reported a case of

#### PNEUMOCOCCUS JOINT INFECTION.

Another case of which I wish to speak, and the chart of which is on the board, is also one which to me, at all events, presents a new feature. A man of seventy-two, who did gardening work, came in on Dec. 5, with a temperature of 102° F. and pulse of 90 odd, with a consolidation in his lung, evidently a pneumonia. He had also an exudate on one tonsil, the culture from which showed pneumococci. In the course of two or three days the process started up in the other lung. The first lung cleared. The sputum had been characteristic, rusty, tenacious, with plenty of pneumococci. As the process started in the other lung there was jaundice, which is not anything very remarkable. On the 12th of December there was swelling about his shoulder, which rapidly increased. The white count went up, and on the 13th of December Dr. Porter incised the shoulder, letting out about a quart of pus full of pneumococci. Then pus containing pneumococci was obtained from one parotid, and later from the other. Then slight swelling appeared in the right knee, which has gone. Here is the man still alive, with this tremendously extended pneumococcus infection. His temperature has ranged from 101° to 102°; the pulse from 110 to 120. He is a man of seventy-two, with degenerated arteries.

This pneumococcus infection of the joint I have never recognized before. Dr. Smith looked up the literature, and Cave collected thirty-one cases of pneumococcus arthritis up to January, 1901, and the arthritis followed the pneumonia at intervals of a few days to a fortnight; in two it is said to have preceded the pneumonia. It is commoner in the upper than in the lower extremity.

DR. PORTER: There was no pus from the right parotid. A culture was made from the serum that oozed out; from the left parotid there was only serum at first, but later pus came.

DR. SHATTUCK also reported a case of

#### TUMOR OF THYROID.

This young girl of twenty-one came into my ward Dec. 12. She had been living in Wisconsin. There was no goitre in the family. While in Wisconsin last March she noticed a swelling in the front of her neck which gradually increased in size without pain. She had some dysphagia and some dyspnea before she came east in April.

Recently the dyspnea had been greater, and the night before entrance she had had a choking spell in which she thought she was going to die. We found this lump in her neck, with stridor and dulness over the upper part of the sternum. The growth evidently extended below the sternum. I assumed that it was a thyroid, and nothing but an enlarged thyroid. She had been taking thyroid gland six months or so without benefit, and I asked Dr. Porter to see her, and he has made a careful study of the case.

DR. C. B. PORTER described a

#### TUMOR OF NECK AND UPPER PART OF THORAX.

I have not made up my mind what the exact condition here is. The first thing noticed in in-



FIG. 3. Carbuncle of neck. Before operation.

spection is the apparent enlargement of the thyroid and an asymmetrical mass on the left and behind the trachea. Upon careful palpation the trachea can be made out down to the sternal notch; the apparent enlargement of the thyroid seems due more to congestion and enlarged veins from growth in anterior mediastium. Upon feeling behind trachea and thyroid on right side there is a hard tumor to be felt, extending about three inches above clavicle, dipping down behind it, extending some inches below it, as evidenced by the large dark veins ramifying on the right upper quadrant of the chest wall; dulness on percussion over same region. The diagnosis seems to be be-

tween solid tumor, which lifts the trachea and esophagus forward, a dermoid cyst and lymphosarcoma, most probably the last. The trachea is pressed upon by the growth, and there is some dysphagia. A Koenig's tracheotomy tube has been ordered, fearing that it might be needed sooner or later. This tube has an upper and lower section solid tube, and the middle section a spiral wire to fit the tortuosity of the displaced trachea. To sum up the condition, there seems to be a hard tumor on lower right side of neck, pulling the trachea and esophagus forward and to the left, extending behind to clavicle and upper ribs, causing congestive enlargement of thyroid and large veins in neck and to outer chest wall.

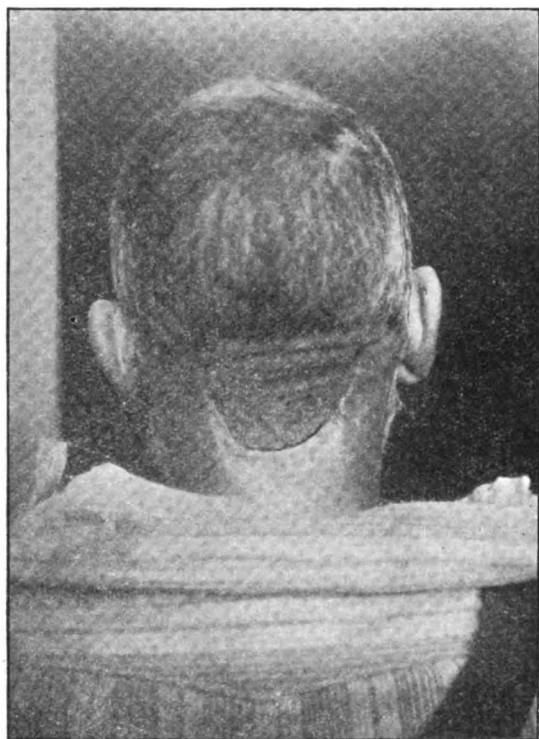


FIG. 4 (same as Fig. 3). After operation and partial healing.

#### EXTENSIVE CARBUNCLE.

DR. C. B. PORTER showed photographs (Figs. 3 and 4) and a man who had a large carbuncle extending practically from ear to ear and from just above vertebra, prominent nearly to occipital protuberance. The whole thing was cut out, and these photographs show the condition which he was in at the time, the result of the operation for removal of the diseased mass. He came to the Out-Patient Department with this carbuncle with the limitations as described above. The whole disease was cut down to healthy tissue, leaving a great gap, which has now closed in until the cicatrix is not larger than a quarter of a dollar. He had some skin grafts which helped to narrow it up. The operation was done Oct. 14. I have had a number of experiences in private practice in cutting

out a carbuncle entirely with as rapid recovery as this. During recovery he developed an abscess in the scrotum that proved to be a staphylococcus infection. He has recovered from that.

DR. WARREN: One of the striking things about these operations is immediate relief from pain, fever and rapid convalescence, healing of the wound, which seems quite gigantic at the time of the operation.

DR. C. B. PORTER described a

#### SIMPLE FRACTURE OF BOTH PATELLÆ.

This is not shown as anything new, but interesting, especially to the older surgeons, showing an excellent result considering the condition.

This patient fractured both patellæ by muscular contraction as she jumped from a carriage to the ground. There has been a successful wiring of the fragments on both sides at the same operation. She now has a certain amount of motion of the knees and the patella on each side is freely movable. This operation cuts short the old method of treatment by many months. I have had some cases walk about with a cane in five weeks after the operation. I was brought to the operation first by the pleading on the part of a laborer to have something done to get him to work as soon as possible. I think the first person I operated on was a boy of seventeen, a clerk in a store, whose family and mother were dependent on him and he was willing to accept the possibilities of an operation.

DR. R. H. FITZ showed a

#### CHRONIC OBSTRUCTION OF THE INFERIOR VENA CAVA.

He showed a male patient, eighty-one years of age, who had been under observation from time to time during the past three years, throughout which period there had existed a widespread elongation and dilatation of the cutaneous veins of the abdomen, hips and thighs. The veins were also markedly tortuous and in the inguinal regions were as large as a lead pencil. Varicocele of the left spermatic vein and hydrocele of the right tunica vaginalis were present. There was no caput medusæ, and the liver was not diminished, nor was the spleen increased in size. The urine gave no evidence of passive congestion.

At no time has palpation of the abdomen been satisfactory, on account of reflex tension of the abdominal wall. On one occasion there was the suggestion of a resistant mass to the left of the spine, in the region of the kidney.

There have been no prolonged disturbances attributable to the venous obstruction. Three months ago a fall from the steps of a street car was followed by pain in the right hypochondrium, and at present, for the first time since he has been under observation, there is free fluid in the abdomen. At the outset there was edema of the legs below the knees, but this has long since disappeared. The cause of the obstruction is obscure, but attributable rather to pressure from without than to thrombosis.

**Reports of Societies.****SUFFOLK DISTRICT MEDICAL SOCIETY.  
SECTION FOR OBSTETRICS AND DISEASES  
OF WOMEN.**

W. H. GRANT, M.D., SECRETARY.

REGULAR meeting Jan. 22, 1902, Dr. E. S. BOLAND in the chair.

Dr. T. LEARY read a paper on the  
PATHOLOGY AND PATHOLOGICAL DIAGNOSIS OF  
CARCINOMA OF THE UTERUS.<sup>1</sup>Dr. WILLIAM R. PRYOR read a paper on  
VAGINAL HYSTERECTOMY FOR CARCINOMA OF THE  
UTERUS.<sup>2</sup>Dr. J. C. IRISH read a paper entitled  
ABDOMINAL HYSTERECTOMY FOR UTERINE CANCER.<sup>3</sup>Dr. ALBERT H. TUTTLE presented a paper on  
THE TREATMENT OF CASES OF CARCINOMA UTERI  
NOT JUSTIFIABLY TREATED BY RADICAL OPERA-  
TION.<sup>4</sup>Dr. C. G. CUMSTON read a paper on  
THE SURGICAL ASPECTS OF CARCINOMA UTERI, COM-  
PLICATING PREGNANCY, LABOR AND THE PUER-  
PERIUM.<sup>5</sup>

Dr. W. H. BAKER: It is most gratifying to one who can look back thirty years and see the change of opinion on this subject in this city. Some thirty years ago, when I dared say at one of our medical societies that I thought certain cases of cancer of the uterus could be cured, it was accepted with a great deal of hesitancy. I think that I was looked upon almost as expressing rather quackish views, and yet to live to see the day when that is an accepted opinion, expressed by so many here tonight, and I know entertained by you all, that certain cases of this kind can by our work be cured, is certainly a great triumph.

In this discussion, which has been so complete and so interesting to me, two main points have been brought out which seem to call for special discussion: first, as to the route to be decided upon through which to do this operation. The vaginal route, the abdominal route — each has had its strong advocates. I think I was the first operator who removed the cancerous uterus through the vagina in this city, and reported the case to the Obstetrical Society nearly twenty years ago. Since that time I think I have done about an equal number by each route. I can only say that personally I grow more and more each year to favor the abdominal route, because I believe, as shown by Dr. Irish's cases, that we can follow out more perfectly any extension of the disease by the abdominal route than by the vaginal; but, I would not overlook those cases where it seems

to me that the operator may do well to combine both the vaginal and the abdominal route in one operation. I think we must decide this question in regard to the preference of route, first, by the skill, or familiarity of the operator with the operation. I would not, if a patient, desire the operator to perform a vaginal hysterectomy on me if he were more familiar with the abdominal route, or vice versa.

Again, I think that the location of the disease would have some influence in deciding him as to the route, if he had as much skill with one as with the other. If, for instance, it were a case of adenocarcinoma of the body of the uterus, I should say that he might prefer the abdominal route. If the disease began in the cervix and extended laterally, he might perhaps prefer the combination of the two or the vaginal route alone.

The second point of especial interest is as to the treatment of the inoperable cases, and here at once we are met with rather a conflicting view of what shall constitute an operable and what an inoperable case. The case that might be, in the opinion of one surgeon, an absolutely inoperable case, might in the opinion of another surgeon be perfectly operable. I should say that the absolute fixation of the uterus, the destructive process having gone so far as to have shelled out the uterus, as it were, the necrosis having gone on to such an extent as to make a shell of the uterus, and that shell having been fixed, we might classify that as inoperable; still, we have seen cases where the process of induration has not advanced correspondingly with the necrosis and there is very little indurated tissue, and such a case, in the hands of some, might be an operable case.

Although I have great respect for the opinion of Dr. Tuttle, I should hardly be content with the soothing influences to which he has referred in the treatment of inoperable cases. Radical treatment having been decided against, to my mind the treatment should be as thorough and as rapidly destructive of that disease from within, as possible. Such a case — for I have one in mind, the mother of a physician in this city, where it seemed an inoperable case and had to be treated from within — would to my mind call for the most vigorous treatment by the curette, by the scissors, the removal of as much of that disease as possible, not being satisfied with the curette alone thus removing a superficial portion of the disease causing hemorrhage and necrotic discharge, but cutting away with the scissors and the scalpel as much indurated tissue as possible, and following that, by the most destructive agents known — the chloride of zinc, the cautery, or, in my later experience, that which has proved of great efficacy, the solutions of formaldehyde, for I have found that applications on cotton and, as our secretary knows, the injection of this fluid into the substance of the indurated tissue, a most useful remedy.

Some of us remember the reports of Dr. Van de Walker's cases treated with chloride of zinc,

<sup>1</sup> See page 406 of the Journal.<sup>2</sup> See page 403 of the Journal.<sup>3</sup> See page 407 of the Journal.<sup>4</sup> See page 412 of the Journal.<sup>5</sup> See page 409 of the Journal.



and the sloughs one-fourth inch thick that have come away through the use of solutions of this substance; and in my experience I have seen that the comfort of the patient, the prolongation of her life, relief from foul discharges and hemorrhages will go on correspondingly as you destroy this disease. Then, why wait, and why be content with the soothing influences of the washes, opiates and the like? Go at it with as much vigor as you would in the radical operation, persist in it, get slough after slough to come away, and in rare instances you will find that by so doing you will prolong your patient's life by many years, and once in a great while, as I have reason to know, in the race that you are running in the destruction of that disease, you will get ahead of it and destroy it faster than it advances, and thus get cicatrization, after which you may effect a cure.

DR. LUCE of Portsmouth, N. H.: My object in coming to this meeting tonight was more that I might listen to these papers and the discussion, and so learn all that I could, not that I have much to offer myself. However, I can truthfully say I have been very much interested in the consideration your society has given to what, from my standpoint, is a rather uninteresting disease. I am very sure I treat no other diseased condition with so little satisfaction to myself and patient as cancer of the uterus. I am reluctantly forced to agree with the recent statement of Dr. Baldy, which has been referred to by Dr. Irish, that practically all patients suffering from cancer of the uterus, at least by far the larger proportion, eventually die of cancer, either primary or secondary, and this in spite of all that can be done for them both medically and surgically. We have passed through the various stages of vaginal and abdominal hysterectomy, and now we are doing the so-called radical operations, and yet there is a question if after all we have made any great progress. It is not the immediate results we care to know about, but the long-drawn-out, subsequent histories after a verified diagnosis, and certainly, if the most recent statistics are correct, we have mighty little to boast of. Cullen's reports show that less than 5% of all patients applying for treatment for carcinoma of the uterus are cured by operation. Unfortunately, at this time we have no other plan of treatment to suggest except operation, and the hope of the future seems to be more in early diagnosis and prompt surgery than in any radical method of operating. Granting this to be true, it becomes our duty to urge upon the profession and the laity the enormous importance of early recognition. I think most men who have been in practice twenty years, or perhaps less, were taught that the symptoms of uterine cancer were pain, foul-smelling discharge, loss of flesh, and cachexia; and a good many first recognize the disease from these symptoms, or a combination of these symptoms today, any one of which, if present in a pronounced manner, means death to the patient.

Within a week a woman came to my office and asked me to procure her a new abdominal sup-

porter. She was a visitor in Portsmouth, and said this supporter had been advised by her family physician to help a weakness from which she suffered, due to the fact that she was then undergoing the change of life. She was fifty-one years old, had stopped regular menstrual periods at forty-eight, but for the last year had been flowing off and on, and for the last part of the year had more or less watery discharge. She said she consulted her physician at the beginning of the trouble and had seen him several times since. He had never examined her, but advised this belt and prescribed medicine. On examination, I ascertained that she had cancer of the cervix, well advanced and probably inoperable.

This is not a unique case, but belongs to a type all too common. Now, I think when all physicians in general practice fully realize that in the beginning this disease is essentially local and that everything depends on prompt interference, we may then expect a larger percentage of cures and better results than we have today. My own experience, which is small, coincides with that of most men who do surgery more or less for cancer of the uterus, in that my most successful cases seem to come from my own family practice and not from the class referred to me for operation. Roswell Park has made the statement that, if the present rate of increase of cancer and decrease in consumption continues, in ten years cancer will kill more people than consumption. Let us hope that a better knowledge of the pathology of this disease and more effective methods of treatment in the near future will prevent this from becoming a fact.

DR. WOOD of Waltham: I am pleased to hear statistics presented of so favorable a character, especially when there has been some pessimism expressed in literature of late. The last speaker has mentioned the point that has been passing through my mind, especially that of the early diagnosis, which was mentioned but slightly in the paper on the pathological diagnosis and by Dr. Pryor. I almost wish we had had a paper this evening, to round out the list, on the causes and clinical diagnosis of cancer. It seems to me it is not possible to improve this rate of mortality in any other way than getting back of the operative procedure, back of the present means of diagnosis, by larger and more general discussion among the physicians, especially obstetricians, and the intelligent laity. The one thought that came to my mind was the close relationship between trauma and cancer, and the very large proportion of cases of cancer occurring in those who have borne children or gone through some mechanical procedure of such a nature as to inflict injury on the uterus, and at a later date have presented symptoms of malignant growth, developing, if not exactly in the scar, certainly near it. I believe that it is a disputed point whether the cancer does actually develop in the scar of trauma or not. But that being the case, it seems to me the only practical way that an early diagnosis can be made is by some more thorough examination of women than

is done at present. The examination of those who have borne children, especially after thirty years of age, the examination of those who have any abnormal form of hemorrhage or discharge of any nature, should be made. The symptoms may be very obscure, the clinical evidence is often so vague and uncertain as to be practically *nil*, and yet it is the best early means we have at hand. Then, if there is any suspicion of malignant disease or any abnormality, the court of last resort is the laboratory of the pathologist.

DR. E. W. CUSHING: I thought the vaginal method was the best operation at a time when the abdominal method was not perfectly developed. With the completion of the abdominal procedure I have given up any special advocacy of the vaginal method. I certainly was one of the early introducers, in 1888, of vaginal hysterectomy for cancer. I think I reported twenty-two cases in that year. Afterwards the French thought they had made great improvements in vaginal hysterectomy. I took the trouble to go over in 1895 and see them work. Segond was the great apostle of the vaginal method. I invited him to come over and see our abdominal work. He came over and went back converted. Jacobs of Brussels came over to show us how to do vaginal hysterectomy and went back converted. Segond published an article on the American operation for abdominal hysterectomy, praising it highly. One point not brought out tonight, on which I should like to somewhat disagree with Dr. Irish, was as to the method of making the combined operation. In my experience, I think it is better to go in above, tie the arteries, dissect down, separate all connections round the vagina, close the abdomen, and pull down the uterus from below before you cut through the vagina. In that way you have various advantages, particularly in less liability to cancerous infection of the vaginal incision.

In what Dr. Cumston said I should quite seriously doubt the wisdom of vaginal hysterectomy in the pregnant uterus during the first six months. I think it would be found a very difficult thing to finish the operation in a surgical manner without clamps. In three cases I have amputated the pregnant uterus in the first six months, owing to the complication of a fibroid. The size of the vessels is something wonderful, and, except in the most expert hands, there is danger of a very serious catastrophe by the vaginal method, whereas, after opening the abdomen and tying off the vessels, it is a perfectly simple operation from above.

I was interested in what Dr. Tuttle was reading in regard to the treatment of inoperable cases and the treatment with oils, etc. I would like to ask him if he refers to the Alexander treatment, which I believe he has tried and uses, and whether he thinks that is good treatment.

It is too late tonight to express my opinion of the Alexander treatment, but I will at an early date present a paper to this society, explaining how by a trick my name has been used by the promoters of this nostrum, and giving my opinion of

the methods employed by these *homines trium litterarum*.

DR. G. J. ENGELMANN: I came here this evening to listen to the discussion, which practically is a reply to a series of questions proposed by the Vienna Academy in 1810: I came curious to know the response of 1902 to questions put nearly 100 years ago. Precisely those questions were then put which are the important questions of today.

At that time it was, of course, asked whether cancer of the uterus is operable, is a subject for the consideration of the surgeon, if so, what were the methods of operation, what the dangers to be avoided, and, finally, the pertinent question was asked, when the operation has been successfully performed, is the case closed, or is anything more to be done?

An answer was given by Sauter in 1822 more in accord with the facts as I take them to be, more in accord with our present knowledge, than were the generally accepted views of the past decades: complete removal was urged, and that with a searching for every bit of infiltrated tissue, every glandule and every nodule; and again and again he emphasizes the importance of a better education of the general practitioner, of early diagnosis, of early operation, and the avoidance of meddlesome or partial operation.

I must here confess that my experience has not been a satisfactory one as regards permanent relief or cure; it has been more like that of Dr. Tuttle. I have myself not had the success which so many have claimed in former years, nor have I seen it in the practice of others, and I note with much satisfaction that at the present day the percentage of cures reported is growing decidedly less, the reports now given are of a very different character and much less favorable than those of ten or more years ago.

Our knowledge of the disease is as yet so limited and cures so rare that these always appear to me as a most interesting study, and two such cases stand out prominently in my experience: one was the success of a high amputation in an unquestioned cancer of the cervix, of which I still have sections which verify the diagnosis. The operation was performed some thirteen years ago on a lady of fifty, whose health was completely restored, and who has had no recurrence. I may incidentally recall the preference given by some, such as Reamy of Cincinnati, and Byrns of Brooklyn, to high amputation over total extirpation. The other is one of *self-limitation*, to which I desire to call attention, because it may afford some indication as to the nature of the disease and because similar cases have not been reported, to my knowledge at least.

I have been called to operate, and found conditions such that I felt obliged to refuse, as the case was too far advanced; the attending physician had termed it carcinoma uteri, and such I found it to be, in an advanced stage, the patient a comparatively young woman with extreme cachexia, profuse offensive discharge with the characteristic odor, the cervix destroyed, a great funnel-shaped

opening into the uterus, which left no doubt as to the condition. Removal seemed out of the question, and my suggestion of curettage, which promised only temporary relief, was not accepted. It was evident that the case would continue to progress rapidly and must soon lead to a fatal termination. I so informed the attendant, and advised frequent antiseptic injections, with removal of the detritus and the free use of iodoform; finally, morphin when suffering became excessive. I heard nothing more from my patient, and presumed the disease to have terminated as I predicted. To my surprise I was informed that the patient had recovered. The discharge had gradually ceased after continuing for some time in extreme profusion, and health had been completely restored; she was strong and vigorous, though not so fleshy as she had been before the beginning of the disease. I followed the case for years and heard only continued good reports, but I have now lost sight of her.

I will admit that the diagnosis may be questioned, as no microscopic examination was made; but this seemed needless, as all the clinical evidences of uterine cancer were present, typical and unmistakable. The case is one that I have frequently mentioned in my desire to elicit corroborative information, but once only have I heard of a similar one, and that was spoken of as a "*self-curettage*," a term which might well be applied to the one reported, as the discharge was so profuse that it appeared like a cutting away of the diseased tissue.

These two cases I always recall when tempted to condemn the removal of the carcinomatous uterus with a view to permanent relief, and they have served to stimulate me to further efforts in the face of the recurrence I so frequently see and the unfavorable results recorded by others, so much so as to lead to the expressed unwillingness of able and experienced surgeons to operate for the cure of uterine cancer.

I am almost tempted to believe that we will yet discover *two forms of neoplasm*, differing decidedly in characteristics and malignancy, which present the same histological structure, so diverging are the reports we receive as to results; but whatever the future may bring, I am convinced that immunity from recurrence is far less frequent than enthusiastic operators would have it appear.

DR. PRYOR: The importance of early diagnosis is well shown in the fact that of 100 women with cancer, we get but seven in a condition fit for a radical operation; and of these seven only 10% are cases of cancer of the body of the uterus, cases that give such good results from vaginal hysterectomy. My endeavor has been to develop an operation which will give these other women suffering from cancer of the cervix an immunity against recurrence equal to that now secured by operating through the vagina upon cancer of the body of the uterus, and I have met with most flattering success. The cases are selected for this operation only as they are selected for the vaginal operation, with the exception that I do not

apply the radical abdominal operation where I feel sure death will result because of the depreciated condition.

But, after all, it hinges on early diagnosis. Women come to us who have had cancer six months. Now, is there not a symptom between the time that cancer begins and the time they come to us which if they knew they could be taught to dread? I believe there is. Frommel, from *a priori* reasoning, supposed that inasmuch as this disease was a multiplication of secretion-producing cells, he ought to get in his cases early an increase in that amount of leucorrhea which nearly every woman has, and which we call her normal leucorrhea, and this is the fact. Clinically, women will observe, four to six months before there is an intermenstrual bloody discharge, that there is a marked increase in the amount of leucorrhea. My interest being excited by the statement of Frommel and substantiated by Walstein, I began questioning in regard to this point, and found that the long-ago-forgotten leucorrhea returns as the first sign of the woman past the menopause. She hails it as the sign of rejuvenation, and I know it now to be a very early symptom of beginning cancer of the cervix. That is my contribution to the early diagnosis of cancer of the cervix.

DR. TUTTLE: As I say in the treatment of cancer of the fundus, I think we get a large per cent. of recoveries which remain permanent, but I have only one case of cancer of the cervix that has lived over three years, and I felt when I made the statement, that we have got to consider a good deal the question brought up tonight, and that is, what is operable cancer? We can take out a cancer by combining our methods when it is very extensive, and practically get rid of the bulk of the growth. I remember last winter having one where there was extensive infiltration into the vagina, so much so it was refused operation in one of the large hospitals. The patient insisted on removal. I removed all the cancerous material from the vagina, taking out nearly half the vagina in one operation. I let her rest about three weeks, and then went ahead and took out from the uterus above, that is, by the abdominal route. The operation was successful as far as the patient getting over the operation. She lived some months afterwards, but it is questionable whether that would be called a justifiable operation. It was done in this case at the request of the patient. If we bring up the subject when an operation is justifiable, that is a pretty hard subject at the present time. If we have not over 10% of recoveries, and I do not pretend to have that amount from cervical cancer, an operation would not be justifiable except in the very beginning, and we see very few cases at that time. As a rule, those are seen mostly by accident. A woman will go until the whole cervix is eaten away before she comes to the physician. That has been my experience; so that we really get an operable case very rarely if we have to consider the question of recoveries in regard to the justifiability.

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THE SMOKE NUISANCE.

Boston has finally awakened to the necessity of a public protest against the smoke nuisance in and about the city. A hearing on a bill which provides for the abatement of the smoke nuisance in the city of Boston and the vicinity was held before the Committee on Cities on April 10. This bill provides for the suppression of the smoke nuisance over the metropolitan area, including all cities and towns situated within a radius of ten miles of the State House, and also that the boards of health of the respective cities and towns shall be charged with the enforcement of the law. The hope is that through moral suasion and education the intelligent portion of the community will gradually recognize the necessity of a cleanly and economical use of fuel and proper method of firing furnaces.

It is furthermore thought that boards of health, with authority to enforce a reasonable law, may be relied upon to bring about the desired reform. A brief statement of the situation has been widely circulated signed by a number of our most influential and public-spirited citizens, urging all individuals interested in the maintenance of Boston as a clean and healthful city to take a personal interest in the proposed reform. It is stated with reason that, if our metropolitan district is not to be kept free from smoke and soot, it is useless to provide beautiful buildings, elaborate parks and gardens. The promoters of the bill maintain that the reform may be accomplished not only without danger, but with positive benefit to the commercial interests of the city. Just how this is to be brought about must be learned from personal experience and from a study of the experience of other cities.

Recently Professor C. H. Benjamin, supervising engineer of Cleveland, Ohio, gave a lecture in

Boston on the control of the smoke nuisance. After commenting on the relative purity of the atmosphere of Boston in comparison with that of cities in the soft coal belt further west, he remarked, with much justice, that, inasmuch as the evil had made so little progress in Boston, there was all the more reason for immediate action to prevent its further encroachments. If things were allowed to go on unchecked, it is altogether probable that the conditions here in a relatively few years would approach those of Cleveland or Chicago.

The lecturer pointed out that bituminous coal owes its offensive character to the presence of hydrocarbons, whereas anthracite and semibituminous coals, being relatively free from hydrogen, cause little offense. The necessity of supplying sufficient air in using coal and keeping up a constant temperature was pointed out, if we are to escape the well-known soot and dense black smoke. In general, it is true that black smoke indicates imperfect combustion, and the immediate cause of smoke, therefore, from hand-fired furnaces, is due to the fact that large quantities of fresh coal thrown on the fire, by clogging up the air passages, leads to a scarcity of oxygen when it is most needed. If sufficient air can be supplied to complete the burning of both the gaseous and solid parts of the fuel we should have practically no annoyance from smoke. It is now a generally accepted fact that from ten to twenty-five per cent. more work may be obtained from fuel by preventing excessive smoke.

When one comes to consider the problem of the railroads, the matter assumes a somewhat different aspect. Mechanical contrivances for the prevention of smoke in the way of mechanical stokers have not as yet been applied to locomotives with any degree of success. There are, therefore, two alternatives, either to use smokeless fuel, or, by exceedingly careful firing, to reduce to a minimum the smoke from soft coal.

From a practical point of view, the method of instituting a reform may be carried out somewhat as follows: First, a census of the furnaces of a city and also of the locomotives may be made. Thereafter, careful observations are made of each chimney or engine, sufficient in number to base an intelligent report upon. When this has been done the subject is presented to persons in authority and suggestions made as to remedies. In very many cases the co-operation of the manufacturers and railroad men has been obtained and progress in a reduction of the nuisance has been evident. This method, it was pointed out by Professor Benjamin, has been followed at Cleveland, and he was already able to report a decided improvement in a period of eighteen months.

In concluding his remarks, Professor Benjamin said that the smoke from soft coal is a great damage to property and to health; that it is entirely practicable to prevent the greater part of the smoke coming from this class of fuel; that such prevention will not only result in good to the community at large, but in direct personal profit to the individual most interested.

It is certainly to be hoped that this very reasonable agitation, begun in time, may have a definite effect upon the conditions existing in Boston. These conditions are admittedly not as yet particularly threatening, and therefore the prospect of complete relief may be the more confidently expected. We shall also observe with much interest the success of the plan to intrust the enforcement of laws that may be made to various boards of health.

#### A FOREIGN VIEW OF AMERICAN METHODS.

NOT many years ago it caused no special surprise to hear from our English cousins' lips that they supposed Indians were common denizens of our city streets, and that gold was to be had for the asking. We had supposed, however, that all this was in the past, and that we were now regarded as quite up to the average in civilization and common sense. It was, therefore, with a certain shock that we read the following apparently serious statement in a recent number of our much esteemed contemporary, *The Medical Press*:

"The inhabitants of Plymouth, U. S. A., have been having a lively time of it of late in consequence of a campaign undertaken by the Board of Health for the extermination of stray dogs and cats, which are suspected to be the means of disseminating smallpox and other infectious diseases. In the abstract the campaign must command approbation, but for parties of volunteers to march through the town armed with shot-guns for the purpose of destroying stray animals is a proceeding which has its drawbacks, in that the wandering and homeless animals were not the only recipients of the leaden shower, sundry wandering inhabitants having received a share, as well as some who merely looked out to see what was going on."

Of course, this may all be true, but it appears a little remarkable that news of it should not yet have reached us except via England. We are not responsible for what may be done in Plymouth, or for what conception of its duties the Plymouth Board of Health may have, but we confess to a rising sense of the humor of the situation, when we contemplate the "leaden showers" and the "wandering inhabitants" and onlookers who apparently stood around calmly waiting to be shot. We believe most fully in the

extermination of infectious diseases by any legitimate means, but the shooting of harmless inhabitants is too drastic a remedy even for us to look upon with complacency. We trust the facts have been misinterpreted in their long passage across the water.

#### MEETING OF THE AMERICAN CLIMATOLOGICAL ASSOCIATION.

THE element of originality is usually sadly lacking in the meetings of medical societies. Such a charge certainly cannot be made this year against the American Climatological Association, which has planned an extensive tour of the far West from May 26 to July 3, for the purpose of study primarily, we presume, and secondarily for pleasure. Such a plan is peculiarly fitting for an association of this character, whose members, no doubt, are, one and all, interested in the possibilities of our Western climate for various classes of disorders. It is proposed to make the journey West by one of the great transcontinental routes, returning by another, the arrangements of travel being as comfortable as foresight and modern methods can make them. A large number of places of interest will be visited *en route*, in New Mexico, Colorado and California, for the purpose of investigating at first hand the climatic conditions and advantages of various health and pleasure resorts. The society will remain four days at Los Angeles, during which the formal annual meeting will be held. The association has invited a few representative physicians, who are not members, to take part in the trip.

It has long since been conceded that annual medical gatherings should combine as great a degree of pleasure with their purely scientific proceedings as is compatible with the dignified presentation of papers or other communications. By this means science does not materially suffer and good fellowship is enormously increased. We congratulate the Climatological Association on its plan, which, we have no doubt, will work out practically in as satisfactory a fashion as it does in contemplation. Other societies have not so good an excuse for such an extensive tour as this promises to be, but anxious program-arrangers should bear in mind the example which is being set by this progressive and energetic association.

#### MEDICAL NOTES.

THE FOURTEENTH INTERNATIONAL MEDICAL CONGRESS.—The officers of this congress, which is to be held in Madrid, Spain, from April 28 to April 30, 1903, have requested Dr. Abraham Jacobi of New York to form the American committee.

The same general plan will be followed as that devised by Dr. Osler for the preceding congress. Invitations to accept places on the committee have therefore been sent to the president of the American Congress of Physicians and Surgeons and the presidents of the constituent societies, the president of the American Medical Association and various other presidents of prominent medical organizations.

**CHICAGO HEALTH STATISTICS.**—As compared with the week previous there was an increased mortality last week in Chicago from all the chief causes of death except scarlet fever, pneumonia and violence. The total, 562 deaths, reported to the Health Department represent an annual rate of 16.10 per thousand of population as against 14.19 and 13.18 respectively for the previous week and the corresponding week of 1901, or more than one-seventh and more than one-fifth increase respectively. Of the 16 new cases of smallpox discovered and removed to the Isolation Hospital during the week one was imported from Iowa and one from Springfield, Ill.; five others were cases contracted from exposure to a man at the Zion College, discovered March 26. At the close of the week 42 cases remained under treatment in the hospital, 10 had been discharged, recovered, and no death had occurred. Since Jan. 1 there have been 128 cases treated, with one death and 84 recoveries. As illustrative of the unusual prevalence and fatality of the contagious diseases 10 deaths from puerperal fever are noted—the greatest number in any one week since weekly records were begun. Scarlet fever still prevails as an epidemic and the effect of the water pollution following the March rains is reflected in the increase of typhoid fever deaths.

**APPOINTMENT OF DR. J. J. KINYOUN.**—Dr. J. J. Kinyoun, late surgeon of the Marine Hospital Service, and director of the Hygienic Laboratory of the Marine Hospital Service at Washington, well known as a bacteriologist, has accepted the directorship of the Biological Laboratories of the H. K. Mulford Company.

**A CENTENARIAN.**—Mrs. Hannah Bartow is dead at her home in New Brunswick, N. J. It is reported that she would have been 106 years old May 1.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, April 16, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 40, scarlatina 15, measles 141, typhoid fever 6, smallpox 9.

**BEQUEST FOR NURSES' BUILDING AT ELLIOT HOSPITAL, KEENE, N. H.**—The sum of \$12,000

has been given to the Elliot City Hospital at Keene, N. H., for the construction of a nurses' building, to be known as the Edward Joslin Home for Nurses. The donors are the children and grandchildren of the late Mr. Joslin. The building will be a three-story structure of brick, similar in style to the present hospital building, which it will adjoin.

**GRADUATION OF NURSES AT VINCENT MEMORIAL HOSPITAL.**—Three nurses were recently graduated from the Vincent Memorial Hospital, Boston. Addresses were made by Dr. C. J. Blake, Dr. Alfred Worcester of Waltham, and others.

#### NEW YORK.

**RIGHT OF A CITY TO APPROPRIATE A WATER SUPPLY.**—In the United States Supreme Court, on April 7, an opinion was delivered by Justice Brewer in the case of Pine and others against the City of New York and ex-Controller Coler, involving the right of the city to appropriate the water of the Byram River, along which the complainants resided. The case was decided against the city by the Circuit Court of Appeals for the second circuit, but the opinion now rendered at Washington reverses that finding and remands the case for further hearing, with instructions to consider the question of damages. This decision, it is thought, settles the right of a state to divert for its own uses streams of water running through its territory, whether they later pour into another state or not. The Byram River is a small stream with two branches, one of which rises in New York and the other in Connecticut. For a portion of its course it is entirely in the latter state, but afterwards forms the boundary between the two states until it empties into Long Island Sound. For the purpose of increasing its water supply the city of New York was building a dam on the west branch of the river, near the Connecticut line. Mill owners had already been paid \$379,000, and offers of settlement had been made to all who considered themselves damaged by the diversion. Two or three Connecticut farmers, however, with property on the line of the river, raised the point that the city, although acting under legislative authority, had no right to divert the water. They claimed that it was not a question of damages, and that the only way the city could get the water would be to buy up all the land in Connecticut abutting the river. They then succeeded in securing from the Federal Court a perpetual injunction against the city, which was afterwards endorsed by the Circuit Court of Appeals. Ex-Controller Coler expresses the opinion that the decision of the Supreme Court will save the city millions of dollars. By it the city's right is also established to utilize the waters



of the Ten Mile River in Dutchess County, N. Y., considered by many engineers to be the best source for increasing the water supply of New York at present available.

**SUMMARY DISPOSITION OF A SUIT AGAINST PHYSICIANS.**—Justice Leventritt, of the New York Supreme Court, has just disposed of a case in a summary manner which it is to be hoped will have the effect of deterring to a considerable extent the bringing of annoying and groundless suits for damages against reputable physicians. A claim for \$100,000 damages was made against Drs. Austin Flint, Allen Fitch and O. J. Wilsey, on the charge that they had conspired to secure the false imprisonment of a patient who had been committed to a private asylum for the insane at Amityville, Long Island, on the examination of the two former, and who had been received by the latter; all acting in the course of regular legal proceedings and in accordance with their obligations, duly defined by law. Instead of endeavoring to compromise and avoid a trial, the defendants made every preparation for a complete and conclusive adjudication. When the suit came up for trial, on the mere statement of his case by the counsel for the plaintiff, the court ordered a dismissal, with costs for the defendants.

**PROCEEDINGS AGAINST VENDORS OF IMPURE MILK.**—The Health Department is displaying commendable activity in proceeding against the vendors of impure milk, and in the Court of Special Sessions on April 7, a wholesale dealer of Orange County, N. Y., against whom charges had been brought by its inspectors, was fined \$600. There were two fines, one of \$100 and one of \$500, for a repetition of the offense, and they are said to have been among the heaviest ever imposed in such cases. In passing sentence Presiding Justice Mayer said: "I am going to make an example of this case, and I trust that it will gain the widest publicity. The justices of this court, where these cases are brought, believe that the Health Department is doing a great work, and we mean to stand by it. The babies of this big city must not die, that the up-state farmer may profit by villainous adulteration of their food—a few cents premium on the head of every little one."

**APPROPRIATION FOR NEW YORK HEALTH DEPARTMENT.**—The president of the Health Department, backed by the hearty support of the Medical Advisory Board of the department, has applied to the Board of Estimate and Apportionment for an appropriation of \$1,025,000, with which to improve the condition of the existing hospitals for contagious diseases in the city and to provide new hospitals in the boroughs of Queens, Richmond and the Bronx. In proof of

the need of increased facilities for the treatment of such diseases, he cites the fact that one day during the past week two cases of smallpox were discovered in remote parts of Staten Island (borough of Richmond), and a department diagnostician had to travel forty miles, and the department steamboat Franklin Edson sixty miles, in securing the removal of the patients to the hospital on North Brother's Island in the East River.

**THE WATER SUPPLY OF NEW YORK CITY.**—In accordance with a request from Controller Grout, the commissioner of the Department of Water Supply has submitted a communication containing his estimates of bonds necessary for the maintenance of his department. In the course of it he says: "It is an astonishing fact that while Greater New York contains 45% of the population of the state, the watershed it lays under tribute covers but 1% of the entire area of the state. That the growth of population is fast encroaching upon the maximum supply which can with certainty be counted upon, is a truth which has been made plain to every expert who has studied the subject."

**PRIZE OF CAROLINE AND OLIVIA STOKES FUND.**—The first of the annual prizes supplied by the Caroline and Olivia Stokes Fund of the New York Botanical Garden in Bronx Park, has been awarded to Dr. F. H. Knowlton, of the National Museum, for an essay entitled "Suggestions for the Preservation of Native Plants."

**APPOINTMENT OF DR. W. F. DREYFUS.**—Dr. W. F. Dreyfus, for the past two years assistant in chemistry at Columbia University, has been appointed chemist in charge of the drug department of the Department of Public Charities, in place of Dr. Rice of Bellevue Hospital, who died in May, 1901.

#### WASHINGTON.

**CONFERENCE OF LEGISLATIVE COMMITTEES OF THE AMERICAN MEDICAL ASSOCIATION AND STATE SOCIETIES.**—A conference was recently held in Washington of the Legislative Committee of the American Medical Association and the chairmen of the Legislative Committees of the State Societies. Reports were made of the results accomplished during the past year in national and state legislation affecting the interests of physicians. The conference adopted a committee report having as its object the securing of suitable state legislation and the creation of a national board of medical examiners, license from which would enable the holder to practise medicine in any state in the Union. The conference favored the conversion of the Marine Hospital Service into a bureau of public health; it also passed resolutions strongly opposing the Gallinger bill to

regulate vivisection in the District of Columbia. It favored the passage of an act by which the medical expenses of sick officers and enlisted men, while absent from duty, should be paid by the government. A memorial was prepared for submission by the committee to Congress urging the promotion of Surgeon-General Sternberg to the grade of major general before his coming retirement for age. A committee was also appointed to wait upon the Secretary of War and protest against the discrimination in pay and promotion existing against physicians entering the army as surgeons, as compared with the pay and promotion given to appointees in the line of the army. The secretary was informed that unless existing conditions were remedied, the medical profession could not regard the Medical Department of the Army as offering sufficient inducements to attract well-qualified young physicians.


**PROMOTION OF THE SURGEON GENERAL OF THE UNITED STATES ARMY.**—On June 7, 1899, the American Medical Association approved the following resolution: "*Whereas*, The position of Surgeon General of the United States Army involves great and grave responsibility, the direction of vast interests, the highest order of professional skill and learning, and executive ability; and *Whereas*, The number of officers and soldiers under the direction of the surgeon general in an army organized as is the Army of the United States is greater than the command of a division commander, *Be it Resolved* . . . That it is the sense of this body that the Surgeon General of the Army should have the rank, pay and allowances of a major general." In accordance with this resolution a bill has been submitted to Congress as follows: "*Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled*, That the President of the United States is hereby authorized to select one from the medical officers of the army who have served forty-one years or more, nine years of which as surgeon general, and, by and with the advice and consent of the Senate, appoint him a major general of the United States Army, for the purpose of placing him on the retired list." This applies to Surgeon-General Sternberg, and is signed by Dr. H. L. E. Johnson of Washington, Dr. Wm. H. Welch of Baltimore and Dr. Wm. L. Rodman of Philadelphia.


**SANITARY CONDITIONS IN MANILA.**—Mail reports from Manila, dated Feb. 23, go to show a very satisfactory condition of affairs in that city, from a sanitary point of view, the city being freer from communicable disease than at any previous time in the three years of American occupation. There had been only two cases of plague in the present year up to the time the report was

written. No cases of plague occurred in January of this year, as compared with 22, 18 and 30 cases occurring during the same month in previous years. While the health authorities are doing everything in their power to place Manila in a sanitary condition, they find much to contend against in native ignorance and indifference. Many native householders object strongly to catching and turning over to the Board of Health the rats on their premises, for fear lest a plague-affected rat should be found among them and they be put to expense and their domestic quiet be disturbed by the board's cleansing and disinfecting operations. Others object to vaccination and inoculation, and waste half the time of the public vaccinators in arguing the question of submission to the operation. The Chinese are the best patients in this respect, looking upon vaccination and preventive inoculation as a joke arranged for their special benefit. All the worst of the buildings in the old walled city have now been removed, and the work of inspection and cleaning up is continued daily. The report says that the condition of the city is much improved, even as regards conditions existing a year ago. The report of the Board of Health says, however, that until many radical sanitary defects are remedied the mortality among the lower classes will remain greater than necessary. The damp and humid habitations of this class contribute largely to the death-rate, the lower floors of dwellings in Manila being too damp for human habitation. The board says that before a satisfactory sanitary condition is reached the expenditure of large sums of money on permanent municipal improvements will be necessary. Among the improvements most needed are a modern sewerage system, better drainage, increased water supply and filtration beds, and suitable public parks.

#### METEOROLOGICAL RECORD

For the week ending April 5, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S...30	29.60	54	61	48	75	73	74	N	W	8	13	C.	O.	O.
M...31	29.38	46	55	38	66	70	68	W	W	15	10	F.	C.	T.
T...1	29.30	43	52	34	75	61	68	N	W	8	16	F.	F.	T.
W...2	29.48	43	47	29	62	59	62	S	W	19	16	O.	C.	O.
T...3	29.80	43	51	35	60	54	57	W	N	14	9	C.	C.	O.
F...4	30.02	40	45	34	61	69	65	N	S	4	8	C.	F.	O.
S...5	29.90	41	45	37	83	79	81	W	N	19	9	O.	O.	T.
	29.64		51	38			68							0.00

• O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
 Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 5, 1902.

CITIES.	Population* Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Diarrheal Diseases.	
New York . . .	3,665,352	1,366	438	17.05	13.76	3.81	.15	2.20	
Chicago . . .	1,852,828	496	155	19.20	22.40	2.06	.10	3.20	
Philadelphia . .	1,349,624	506	121	23.00	14.80	3.40	3.00		
St. Louis . . .	603,717	—	—	—	—	—	—	—	
Baltimore . . .	525,330	224	48	23.63	17.99	.89	1.70	2.23	
Cleveland . . .	411,826	—	—	—	—	—	—	—	
Raffalo . . .	375,742	—	—	—	—	—	—	—	
Pittsburg . . .	341,401	138	47	21.02	31.17	—	7.97	2.90	
Cincinnati . . .	332,032	—	—	—	—	—	—	—	
Milwaukee . . .	304,975	—	—	—	—	—	—	—	
Washington . . .	289,537	—	—	—	—	—	—	—	
Providence . . .	185,870	59	15	18.70	13.60	3.40	—	5.10	
Boston . . .	588,730	233	66	17.59	23.31	1.71	.43	1.28	
Worcester . . .	127,337	30	12	6.67	16.67	3.33	—	—	
Fall River . . .	111,872	39	—	17.90	30.72	5.12	—	5.12	
Lowell . . .	99,574	35	6	22.85	8.57	5.71	—	—	
Cambridge . . .	96,334	34	8	20.58	17.64	5.88	—	—	
Lynn . . .	71,144	22	9	13.62	9.08	—	—	—	
Lawrence . . .	67,275	19	8	15.78	20.30	—	5.26	—	
Springfield . . .	66,854	15	7	6.67	20.00	—	—	—	
Somerville . . .	65,882	16	4	13.33	—	—	—	—	
New Bedford . .	65,574	20	6	25.00	25.00	10.00	—	—	
Holyoke . . .	48,065	15	7	13.33	13.33	—	—	—	
Brookton . . .	43,208	7	3	42.90	—	—	14.30	—	
Haverhill . . .	40,392	12	3	8.33	33.33	—	—	—	
Salem . . .	36,567	9	2	—	—	—	—	—	
Newton . . .	36,336	10	2	30.00	—	10.00	—	—	
Malden . . .	35,390	11	4	27.27	27.27	—	—	—	
Chelsea . . .	35,264	8	—	37.50	—	—	—	—	
Fitchburg . . .	33,848	7	2	28.60	28.60	—	—	—	
Taunton . . .	32,759	16	2	25.00	12.50	—	—	6.25	
Everett . . .	27,114	7	3	—	—	—	—	—	
North Adams . .	26,583	6	—	—	50.00	—	—	—	
Gloucester . . .	26,121	3	1	—	33.33	—	—	—	
Quincy . . .	25,307	6	—	16.67	—	—	—	—	
Waltham . . .	24,612	8	2	50.00	25.00	12.50	12.50	—	
Pittsfield . . .	22,311	3	—	—	33.33	—	—	—	
Brookline . . .	21,679	—	—	—	—	—	—	—	
Chicopee . . .	20,390	6	1	16.67	16.67	—	—	—	
Medford . . .	20,014	4	3	—	25.00	—	—	—	
Newburyport . .	14,478	9	0	22.22	—	—	—	—	
Melrose . . .	13,384	4	1	—	—	—	—	—	

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,442; under five years of age, 993; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 658, acute lung diseases 580, consumption 382, scarlet fever 50, erysipelas 14, typhoid fever 39, whooping cough 22, cerebrospinal meningitis 8, smallpox 28, measles 32, diarrheal diseases 65, diphtheria and croup 100.

From whooping cough, New York 13, Chicago 2, Philadelphia 2, Pittsburg 1, Boston 2, Lawrence and Springfield 1 each. From cerebrospinal meningitis, New York 2, Baltimore 1, Pittsburg 1, Boston 4. From scarlet fever, New York 28, Chicago 17, Philadelphia 2, Pittsburg, Providence and Fall River 1 each. From erysipelas, New York 5, Chicago 3, Baltimore 2, Pittsburg, Boston, Somerville and Framingham 1 each. From smallpox, New York 20, Philadelphia 6, Baltimore and Cambridge 1 each.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending March 22, the death-rate was 17.6. Deaths reported 5,015; acute diseases of the respiratory organs (London) 388, whooping cough 116, diphtheria 93, measles 149, smallpox 68, scarlet fever 50.

The death-rate ranged from 7.5 in Handsworth to 27.0 in Devenport; London 18.8, West Ham 18.6, Croydon 20.4, Brighton 16.3, Portsmouth 19.3, Southampton 19.3, Bristol 14.6, Birmingham 17.3, Leicester 18.3, Nottingham 15.9, Birkenhead 19.9, Liverpool 19.4, Manchester 18.5,

Salford 17.0, Bradford 15.2, Leeds 16.1, Sheffield 17.1, Hull 17.6, Newcastle-on-Tyne 17.9, Cardiff 11.7.

# OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MARCH 27, 1902.

WHITE, J. H., surgeon. To proceed to Baltimore, Md., for special temporary duty. March 21, 1902.

CARRINGTON, F. M., surgeon. To proceed to Fort Bayard, East Las Vegas and Santa Fe, New Mexico, for special temporary duty. March 17, 1902.

GEDDINGS, H. D., passed assistant surgeon. To proceed to Baltimore, Md., for special temporary duty. March 21, 1902.

GREENE, J. B., passed assistant surgeon. Granted leave of absence for seven days from March 18, 1902, under paragraph 181 of the regulations.

ADAMS, F. B., acting assistant surgeon. Granted leave of absence for twenty days from April 1. March 26, 1902.

KINSELL, B., acting assistant surgeon. Granted leave of absence for ten days from Feb. 10. March 21, 1902.

RODMAN, J. C., acting assistant surgeon. Granted leave of absence for three days from March 27. March 26, 1902.

TOWNSEND, F., acting assistant surgeon. Granted leave of absence for one month from March 15, 1902. March 24, 1902.

WETMORE, W. O., acting assistant surgeon. Leave of absence for fourteen days granted Acting Assistant Surgeon Wetmore, revoked. March 26, 1902.

## BOARD CONVENED.

Board convened to meet at the Bureau March 24, 1902, for the physical examination of candidates for admission to the engineer corps, R.C.S. Detail for the Board — Passed Assistant Surgeon H. D. Geddings, chairman; Assistant Surgeon B. S. Warren, recorder.

## APPOINTMENT.

W. E. RICE of Maine, appointed acting assistant surgeon for duty at Bath, Me., March 21, 1902.

## SOCIETY NOTICES.

MAINE MEDICAL ASSOCIATION.—The annual meeting of this association will be held at Portland, Me., June 4, 5 and 6, 1902, under the presidency of Dr. F. H. Gerrish.

SUFFOLK DISTRICT MEDICAL SOCIETY.—There will be a regular meeting of the Section for Obstetrics and Diseases of Women in Sprague Hall, Boston Medical Library Building, 8 The Fenway, Wednesday, April 23, 1902, at 8.15 p.m.

Papers: Dr. S. Breck, "The Mechanics of the Uterine Ligaments and its Practical Application"; Dr. Charles F. Painter, "Some Congenital Conditions Demanding Orthopedic Treatment"; Dr. F. B. Lund, "Congenital Deformities of the Hand."

W. H. GRANT, Secretary.

## RECENT DEATHS.

DR. SANFORD J. MURRAY of New York, a graduate of the Medical Department of the University of Vermont in 1878, died recently at Glens Falls, N. Y.

DR. A. A. NOUEL of New York, a graduate of Bellevue Hospital Medical College in 1876, died on April 9, at the age of fifty-six.

DR. JOSEPH H. GALLAGHER of Brooklyn, N. Y., died on April 9, from pneumonia. He received his academic education at the Augustinian College of Villanova in Pennsylvania, and was graduated in 1898 from the Long Island Medical College Hospital, Brooklyn, after which he served on the house staff of St. Catharine's Hospital.

## BOOKS AND PAMPHLETS RECEIVED.

Manual of Childbed Nursing with Notes on Infant Feeding. By Charles Jewett, A.M., M.D., Sc.D. Fifth edition, revised and enlarged. New York: E. B. Treat & Co. 1902.

Gallertkrebs des Magens und des Omentums. Diagnose durch Paracentese. von Stephan Smith Burt, A.M., M.D., Professor der Medizin und physikalischen Diagnose an der New York Post-Graduate Medical School, konsultierender Arzt des New York Post-Graduate Hospital. Ins Deutsche für die "Deutsche Praxis" übertragen von Herrn Prof. Dr. A. Rose, New York. (Mit 2 Abbildungen.) Illustrated. München: Druck von Franz X. Seitz. 1902.

## Original Articles.

THE SERUM TEST FOR BLOOD.<sup>1</sup>

BY E. S. WOOD, M.D., BOSTON,  
Professor of Chemistry, Harvard Medical School.

DURING the past ten years the immense amount of work which has been done upon the blood, in the study of various questions concerning antitoxins and immunity, has resulted in the discovery of the formation in the blood of various specific antibodies, such as the antitoxins, and also of certain specific precipitins, which will produce precipitates in different bacteriological products, in different kinds of milk and in different kinds of blood. The study of these bodies is still in its infancy, and offers a vast field for special investigations.

I need not go into the details of previous work done upon these bodies. The investigations of Krause, in 1897, first demonstrated the presence in the blood of the specific precipitins in the antisera of the cholera, plague and typhoid. Those of Bordet, in 1899, showed the formation in the blood of the rabbit of the specific antibodies which act upon milk. The antibodies formed acted only upon the special kind of milk with which the rabbit was treated. If the rabbit was injected with human milk, its serum precipitated the casein from human milk only; its serum would not precipitate the casein from cow's milk or goat's milk. Later, these results were confirmed and the investigations extended, so as to demonstrate the formation in the blood of antisera, which acted upon the different kinds of blood or blood serum. The first discovery of blood antisera was made by Tschistovitch in 1899, and his work has been confirmed and extended since then by Uhlenhuth, Wassermann and Schütze, Myers and Nuttall.

It has been found that rabbits are the animals which are best suited for this kind of experimentation. If a rabbit is prepared by injecting into the peritoneal cavity, several times, at intervals of a few days, about 10 cc. of any kind of blood or blood serum, there will be formed in the blood of that rabbit a peculiar body, called by Myers and Nuttall a specific *precipitin*, which will produce a precipitate, called by them the *precipitum*, in the diluted blood or blood serum of an animal of the same kind as the one with which the rabbit was prepared. It will not produce a precipitum in the diluted blood or blood serum of an animal of any other kind unless it be very closely allied generically, nor will it produce a precipitate with the dilute blood or blood serum of a normal rabbit. A rabbit may also be treated with any pathological fluid containing human blood serum, such as pleuritic exudation and, as Dr. Whitney has determined, hydrocele fluid, instead of blood serum, when the precipitin will be formed which will produce the precipitum in diluted human blood.

<sup>1</sup> Read before the Massachusetts Medico-Legal Society, Jan. 4, 1902.

Uhlenhuth, in February, 1901, prepared rabbits both with human blood and ox blood, producing in the rabbit human antiserum in one case and ox antiserum in the other. His comparative tests were made with the blood of man, ox, horse, donkey, pig, sheep, dog, cat, deer, fallow-deer, hare, guinea pig, rat, mouse, rabbit, chicken, goose, turkey and pigeon. No precipitum was formed in the diluted blood solution of any of these animals except the one with which the animal was prepared.

Uhlenhuth made the important discovery that the precipitate was produced in clear solutions made by treating dried blood stains with normal salt solution, just as well as in diluted fresh blood.

Wassermann and Schütze, also in February, 1901, found that it was not necessary to treat the rabbit with blood, but only with the blood serum. The hemolysins obtained by treating the rabbit with the red blood cells, and the agglutinins formed by the action by the hemolysins upon the red blood cells, have no importance from a medico-legal point of view, since the red blood cells may be completely destroyed in blood stains which have been exposed to various conditions. For this reaction it is necessary that some red blood cells should be in suspension. These authors made comparative experiments with the blood of man, horse, donkey, goat, cow, ox, sheep, pig, dog, cat, baboon, guinea pig, rabbit, mouse, rat, goose, duck, chicken, sparrow, eel, pike and tench. They found that the antiserum from the rabbit prepared with human blood reacted also with the blood of the baboon, but much more slowly and less strongly than it did with diluted human blood.

Stern, February, 1901, found also that the blood of the humanized rabbit reacted feebly with the diluted blood of three different kinds of monkeys, a species of *cercopithecus*, *macacus cynomolgus*, L. ("Java-Ape"), and the "Crown-Ape."

Nuttall, July, 1901, made comparative experiments with thirty-six different kinds of blood; the bloods being those of man, four species of monkey: *Cercopithecus campbelli*, Waterh., *cercopithecus patas*, west coast of Africa; *cercopithecus lalandi*, Is. Geoffr., South Africa; *macacus rhesus*, India; the rufous rat-kangaroo (*hypsiprymnus rufescens* [Gray], New South Wales), the capybara (*hydrochoerus capybara*, South America); the polecat (*mustela putorius*), suricate (*suricata tetradactyla*), South Africa; squirrel (*sciurus vulgaris*), guinea pig, tame and wild rabbit (*lepus cuniculus*), white rat, black rat (*mus rattus*), horse, ox, sheep, white-tailed gnu (*connochaetes gnu*), South Africa; gazelle (*gazella arabica*), deer (*gervus axis* Erxl, India); dog, cat, pig, bat (*plecotus auritus*), pigeon, chicken, pheasant, swan (*cygnus olor*), duck, chaffinch (*fringilla coelebs*), cross-bill (*nucifraga caryocatactes*), rook (*corvus fragilegus*), swallow (*hirundo urtica*), corn-crake (*crex pratensis*), frog (*rana temporaria*), newt (*molge cristata*), and snake (*tropidonotus natrix*). The

serum of the rabbit, which was prepared with sheep's blood, gave a slight reaction with the blood of the gazelle and axis deer, and there was very slight clouding in the blood of the ox, squirrel and swan. The serum of the rabbit treated with ox blood gave a distinct reaction with the blood of the gazelle and axis deer, and slight cloudiness in the blood of the sheep, gnu, squirrel and swan. The serum of the rabbit prepared with human blood gave a slight reaction with the blood of the four kinds of monkeys tested. He found that it gave a very faint cloudiness in solutions of the blood of the horse, ox and sheep. The serum of the humanized rabbit gave positive reactions with diluted human serum, pleuritic exudation, both fresh and putrid, with blood which has undergone putrefaction for two months, with serum from a blister, and a slight reaction with both nasal and lachrymal secretions.

The method of humanizing a rabbit is to inject into the peritoneal cavity about 10 cc. of human blood serum at intervals of two or three days, until the rabbit has received six or eight injections. The details of this operation will be described to you by Dr. Whitney. The rabbit should be allowed to rest about a week after the last injection. The blood serum for performing the test may then be obtained either by killing the animal, by bleeding it from one of the large vessels, or, without killing the animal, by removing a little blood from one of the large veins of the ear. The blood thus collected should be placed in a cool place and allowed to coagulate. The serum which separates from the clot may be used for performing the test.

The blood to be tested should be prepared as follows: If it be fresh blood, it should be diluted about 1:100 with normal salt solution. Thus diluted it should have a light pink color, and this diluted solution, if not perfectly clear, should be allowed to settle until it is clear, and the clear supernatant fluid decanted into another test tube. If the blood to be tested is a dry blood stain, a little of it may be scraped off with the point of a knife on to a watch glass, if the stain be upon some hard surface so that the blood has not penetrated into the substance of the material. If the blood stain be upon cloth into which the blood has soaked, it is necessary to cut out a few threads and transfer them to a watch glass. These fragments of dried blood should then be treated with two or three drops of distilled water, until the soluble portion of the dried blood has been dissolved. The clear solution is then transferred carefully to a very narrow test tube, and to this should be added an equal volume of double normal salt solution. The clear fluid thus obtained, either by diluting fresh blood or by dissolving the blood serum from the dried blood stain, is then tested by adding to it a few drops of the serum obtained, as above described, from the humanized rabbit. If the solution contains human blood serum, there will occur an immediate cloudiness which gradually increases, so that

there is a distinct precipitation within one-half hour after the addition of the serum from the humanized rabbit. It is better to allow the anti-serum to flow down the side of the test tube, so as to form a separate layer under the solution to be tested, in the same way that we add nitric acid to urine in testing for albumin. In this case the cloudiness and precipitate may be seen very distinctly in the zone at the point of contact of the two fluids. The precipitate occurs best when the mixture is kept at a temperature of about 37° C.

It has also been found that the antiserum obtained from the humanized rabbit can be kept in dried form by soaking filter paper or blotting paper with it and allowing it to dry. In this way it is said to preserve its activity for forty-two days more or less (Dr. Nuttall). When it is desired to use this for a test, it may be dissolved from the filter paper by means of a little normal salt solution and filtered if necessary. This clear solution, added to the diluted blood, or solution from a dried blood stain, will give the cloudiness and precipitation the same as the original antiserum obtained from the humanized rabbit.

I have recently applied this serum test in a murder case, which is now being tried in New Hampshire. The test was applied separately to the following stains: One about one-quarter of an inch in diameter on the right elbow of a brown jacket; another about one-half inch in diameter on the lower left front of the same garment. One-half of the stain on the elbow was cut out and soaked with a few drops of distilled water. The material from the other stain was obtained by scraping the surface of one-half of the stain with a knife on to a watch glass, and the powder thus obtained was treated with a few drops of distilled water. As mentioned above, this distilled water solution was transferred to a small test tube and treated with an equal volume of a double normal salt solution. Four small spatters on one leg of a pair of overalls were scraped off with a knife and treated in a similar manner; also one stain, about one-fourth inch in diameter, on the other leg of the same garment. A few threads from two blood stains on the towel were cut out, and a solution made as above described. Also some clotted blood found on a stone which weighed about three pounds, this being the implement with which the murder was committed, the victim being killed by blows upon the head with the stone; a solution of this blood was made in a similar way. These solutions were placed in small test tubes side by side, and, for purposes of comparison, several other test tubes containing solutions of dried human blood, of that of a dog, ox, pig and sheep. All of these solutions being thus prepared, there was added to each one two or three drops of the test serum obtained from the humanized rabbit. A distinct precipitate occurred within one-half hour in the test tubes containing the fluid obtained from both stains on the jacket, those obtained from both legs of the overalls, from the stain on the towel, from the

blood on the stone, and in the test tube containing the solution of known human blood. No precipitate or cloudiness occurred in the test tubes containing the solution of blood from the dog, pig, ox or sheep.

#### NOTES ON THE PRODUCTION OF THE TEST SERUM IN RABBITS.<sup>1</sup>

W. F. WHITNEY, M.D., BOSTON.

As a rule, with moderate care there is little danger of infection of the rabbits by the injection. The abdomen should be shaved and the skin thoroughly scrubbed with strong alcohol. The rabbit is held out straight by an assistant taking his ears in one hand and his hind legs in the other. The skin is pinched up with the left hand and the needle introduced by a steady thrust with the right. The only chance is that the point may not be inserted into the peritoneal cavity, but under the loose skin when liability of an abscess forming seems to be greater. Such has been the experience in two of our cases. After withdrawing the needle the abdomen should be again scrubbed with alcohol.

Any syringe that can hold 10 cc. and can be properly sterilized is all that is required. The one we have used is a glass antitoxin syringe with a long, relatively large needle.

The serum which can be most readily procured is hydrocele fluid (in any large hospital several are tapped every week, and each one gives about 200 to 250 cc. of fluid). Ascitic and pleuritic fluid are not quite so common, but the amount is so much larger that it can be used for more rabbits.

Serum can be kept for a long time if collected in a sterilized bottle under aseptic precautions, and a little chloroform poured in and allowed to remain at the bottom of the flask. The mouth can be plugged with sterilized cotton.

These sera have the advantage over those obtained from blood, that they are perfectly clear and do not have to be separated from the blood clot and corpuscles. Human blood serum is most readily obtained by squeezing a freshly delivered placenta and then allowing the serum to separate by clotting. The centrifuge is often needed to clear the serum of any stray corpuscles. About 6 to 8 cc. can be thus obtained from each placenta.

As to the relative advantage of the serum from one source or another, our experiments, as yet, are not conclusive. Krause says that hydrocele fluid does not develop as strong a reaction in the rabbit as the serum obtained directly from the blood. On the other hand, Uhlenhuth says there is great difference in the susceptibility of rabbits.

In our experience in two parallel series, the hydrocele rabbit gave the better reaction in one and the blood serum rabbit in the other. Further

experiments are necessary before this can be regarded as settled.

Is there any indication by which it can be known beforehand whether a rabbit will yield a strong antiserum? The only indication which we have on this point is that in both of those which gave the best reaction, the blood did not coagulate so quickly as in those which gave a poorer reaction. Whether this is a condition which is developed by the formation of the antiserum, or whether it pre-existed, we have no knowledge. If it pre-existed and is more than a coincidence it might be used in selecting the animals for injection.

In two cases a single large dose (100 cc.) of hydrocele fluid was injected at once, but no reaction was obtained either the next day or at the end of a week. So that in this way at least the process cannot be shortened.

It was thought that the antiserum might possibly be secreted by the kidneys, and the urine of a highly sensitized rabbit was collected for this purpose. But no characteristic reaction was obtained.

While the operations and reactions are so simple that they can be performed by anyone, still they require care and exactness, and considerable previous practice should be obtained before one would be qualified to testify in a capital case.

In every case of death by violence, where murder is suspected, and there is a possibility of a blood stain having to be examined, a strip of filter paper should be soaked in the blood of the individual at the autopsy. This should be sent to the expert who makes the examination of the suspected blood stain in order that any doubt as to this individual's blood giving a serum reaction can be set at rest.

#### NOTES ON X-LIGHT.

BY WILLIAM ROLLINS, BOSTON.

##### VACUUM TUBE REGULATORS FOR X-LIGHT TUBES.

*The transformer type.*—A chemical capable of yielding a vapor on heating, reabsorbing it again on cooling, is placed on a suitable shaped receptacle, usually a cylinder of glass one centimetre in diameter, which is connected with the x-light tube. A wire is laid from each pole of the generator to a coil of fine wire surrounding the cylinder containing the chemical. The secondary of this coil is a few turns of coarse wire, within or without the cylinder. In either case, the arrangement forms a stepdown transformer, in which the high potential current used to excite the x-light tube is transformed into a heating current, the effect of which is to liberate vapor from the chemical. The duration of the heat depends upon the length of time the current passes in the fine wire of the transformer, being determined by the length of the variable spark gap in the circuit containing the fine wire coil. The action is auto-

<sup>1</sup> Read before the Massachusetts Medico-Legal Society, Jan. 4, 1902.



matic, as in some of the other regulators I have designed. When the resistance of the tube is higher than that of the regulator circuit, a current passes through the fine wire of the transformer, heating the coarse wire of the primary, liberating the gas, which, going into the tube, lowers its resistance until the current no longer passes through the transformer, until by use the resistance of the tube has risen. Thus the vacuum of the tube is maintained at any desired point.

*The high potential bridge regulator.*—A similar glass cylinder to the one already described, or any other suitable receptacle, contains, in addition to the chemical, a piece of fine platinum wire whose ends are connected with proper terminals sealed into the glass, serving as attachments to the wires from a source of current of low voltage. When a current passes through this wire it is heated. A suitable current may be obtained from four cells of Mescro dry battery. The circuit composed of the fine wire and the battery contains a minute spark gap which prevents the current from the battery from heating the wire. The high potential current is used as an automatic drawbridge on which the low voltage current can cross, enabling it to heat the wire of the regulator, thus lowering the vacuum. To compel the high voltage current to bridge the gap instead of going through the battery, a choking coil or other suitable device is used. The action of this regulator is also automatic. These regulators are described in a general way, as I wish to claim the principles broadly, to prevent patents being taken, for we already have too many of these on x-light apparatus, a considerable number being unjust.

For examples, two are mentioned. In 1896<sup>1</sup> Pupin and others recommended the use of fluorescent screens for diminishing the exposures for photography by x-light. Such screens are essential at the present time for taking instantaneous pictures of the organs of the chest, which are of great importance, as they give us permanent, instead of fleeting, images, yet the method has been made the subject of a patent. Another case of importance is that of automatic regulators for x-light tubes. These have been in use since 1896, and with powerful apparatus they are often of much importance, yet the patent office has granted patents on these old devices. Our patent laws are in need of revision. No patents should be allowed on any device that has been described in print, and none on any methods or apparatus that may be used in medicine.

#### SOME CONCLUSIONS FROM EXPERIMENTS ON GUINEA PIGS WHICH ARE OF IMPORTANCE IN THE TREATMENT OF DISEASE BY X-LIGHT.

I have made several series of experiments on guinea pigs with x-light. A few of the results have been reported in this journal. In the present note will be given some conclusions from the experiments which are of importance in treating disease by x-light.

<sup>1</sup> Electricity, Feb. 12, 1896.

Röntgen showed that the visual and photographic intensity of x-light varied as the square of the distance. Before x-light could be used intelligently as a therapeutic agent it was necessary to learn by experiments on animals whether its effect upon the tissues varied in the same way. My experiments showed it did. The bearing of this observation on the treatment of internal disease is more important than at first appears. It shows that the source of x-light should be at a distance, not within a few centimetres, as is the universal custom now when using x-light for therapeutic work. Unless the distance between the exterior of the patient and the seat of the internal disease is small relatively to the distance between the nearest surface of the patient and the tube, the healthy skin and superficial tissues will be subjected to a much stronger radiation than the internal diseased organs. This observation points to the necessity of using much more powerful apparatus than is generally employed, because with the source of x-light at a distance the strength of the radiation striking the diseased tissue is little; the length of exposure must, therefore, be long.

The next matter is the kind of x-light to be employed. General opinion considers the proper radiation for therapeutic purposes to be that from a tube of low resistance, because that is the kind that burns. My experiments on guinea pigs showed that all forms of radiation from vacuum tubes which could be classed as x-light could burn, produce abortion and death. Therefore, as we can produce injurious effects with any form of x-light, we should learn to use, without injurious effect, the kind best suited for the purpose. The kind must depend upon the seat of the disease to be treated. For superficial diseases we should use the radiation from a tube of low resistance. There are two reasons. This kind of x-light is most absorbed by these tissues; therefore we are using the energy to the best advantage while subjecting the underlying healthy tissues to less stress. Second, with any given generator the amount of electrical energy we can convert into x-light in a tube of low resistance is far greater than the amount we can convert into x-light in a tube of high resistance. This is hard to believe, for a high resistance tube appears to be giving a light many times as brilliant, but my experiments in pumping tubes prove that as the exhaustion goes on the amount of electricity which any given generator can send through a tube diminishes. One reason why I have always advocated describing a tube as having a high resistance rather than as having a high vacuum has been to keep this fact in mind. Because it has not been recognized, we have gone astray, supposing the light that burnt was that from a low tube, and in consequence thought that this was the light required to produce therapeutic effects. It is a question of quantity as well as quality.

If we wish to treat internal diseases, we should use the radiation from a tube of high resistance, because this light being less absorbed by the su-

perforial tissues, they are less affected relatively than with a radiation which they absorb to a greater extent; also, because this radiation is less absorbed by the superficial tissues more is available for affecting the internal organs.

Perhaps as important a conclusion as any from the experiments is this: We need powerful apparatus, and experimenters who are working hard to design such apparatus should be encouraged. Their results should not be condemned because the photographic results obtained with them in the hands of a few have been uncertain and less satisfactory than those obtained with old-fashioned coils and static machines. An investigation showed me that the fault was not in new and powerful types of generators, but with the tube makers. I have, therefore, published in the *Electrical Review* simple directions for pumping x-light tubes for powerful apparatus.

#### ON THE NEED OF AN INSTRUMENT FOR MEASURING THE INTENSITY OF X-LIGHT.

I have suggested that the greatest need in x-light tubes was a means of restoring the pristine brilliancy. Though this difficulty is not completely removed, it is no longer of first importance, because a fairly good solution has been found to be the use of more powerful apparatus of the type shown in Note 112.<sup>2</sup> If a generator has sufficient power we can afford to let this initial brilliancy die out and use the light yielded by an old tube with a proper regulator. At the present time the problem of greatest importance is to find instruments for measuring the intensity of x-light. When these instruments are discovered and a standard fixed, I hope the x-light unit will be called a Lenard, after the physicist who first showed that a vacuum tube yielded a radiation which, though generally invisible to the eyes, would photograph through opaque substances. At the present time an observer in reporting his results with x-light usually considers he has described its quality and intensity sufficiently when he has stated that the tube was "hard" or "soft," has given the spark-length of his coil and the amperage of the current used in the primary. Consequently, the results of one man cannot be compared with those of another, for the amount and intensity of the light, as well as its quality, can vary greatly, the stated terms being alike. One of the required instruments should quickly show to the eyes the therapeutic power of the x-light, and another, as suggested by Mr. Heinze, should tell its photographic intensity. This need is well seen in using large coils of the type mentioned, because it is possible, with the arrangements of condensers and spark-gaps of these coils, for the light to appear brilliant when we look in the fluoroscope and yet to have little actinic power. Until we get an actinometer, the photographic intensity of x-light should be judged by a tungstate of calcium screen and not by one of platino-cyanide of barium. Skilled observers who use these powerful coils are able to make good photo-

graphs of the hips (the most difficult joints) with certainty in a reasonable time, as compared with the long exposures required to get inferior results with large static machines. But others have condemned powerful apparatus, stating that it was not so good as ordinary static machines or small coils, and have said that the amount of x-light did not depend upon the power of the apparatus. Such reasoning is illogical. To get a powerful x-light we must use a powerful generator. There is nothing in the nature of x-light whereby it differs in this respect from ordinary light. We do not expect to get 1600-candle power from a 16-candle power incandescent vacuum lamp. If we want more light of the same kind than we can obtain from the latter, there is no way to get it except by using more current, in a suitable lamp. Until we get x-light powerful enough to take instantaneous photographs of the heart and other organs (which could be done if money were provided for experiments) we should not slacken our endeavors to construct and learn to use more powerful apparatus. We are at present only in the dim light of an x-light dawn. Few can see clearly what the day will be. Until we get convenient measuring instruments we should, in attempting to describe the amount and kind of x-light used in any case we are reporting, abandon the words hard and soft as applied to a tube, for if we were to shuffle all the words in our vocabulary and take any two at random they would be more suitable than these. Nor is it sufficient to say that the vacuum was equal to so many inches of air, for I have shown that the vacuum is but one factor in determining the quality of the light. Nor will the resistance answer as a standard, for two tubes may have the same resistance and yet the light may be entirely different, as I have already proved. At present it is necessary to know not only the resistance, but the size of the terminals, their distance apart, the material of which they are made and the current passing. So simple a change as having the anode in one tube a target and in another having the target separate from the anode, will greatly change the character of the light, for the subatoms of the cathode stream move more rapidly toward a target that is an anode, and, consequently, we get more x-light in this case, for the heat of impact is higher.<sup>3</sup> We must also know the kind of break used, the kind of current, as well as its amount, and whether condensers are used in the primary or secondary, their capacity in microfarads or in square centimetres of coated surface, when they take the form of Leyden jars in the secondary. Yet, with all these data to aid him, an observer cannot at present expect to accurately know the amount and quality of the x-light used in another man's experiment. As this retards progress, it must be overcome.

THE New Jersey Legislature, through the efforts of the governor, has appropriated \$50,000 for a state sanatorium for tuberculosis.

<sup>2</sup> Electrical Review, Dec. 26, 1900.

<sup>3</sup> Note 66, Electrical Review, Oct. 25, 1899.

## Clinical Department.

### CONTRIBUTIONS FROM THE ORTHOPEDIC DEPARTMENT OF THE CARNEY HOSPITAL.

#### OSTEOSARCOMA OF THE ELBOW.

BY ROBERT B. OSGOOD, M.D., BOSTON.

THE patient was a pale, slender woman, 29 years old; married at twenty and the mother of six children. The family history and the past history were negative. She came to the Out-Patient Department on Sept. 21, 1900, because of pain and swelling over the outer side of her right elbow. This had been of one year's dura-



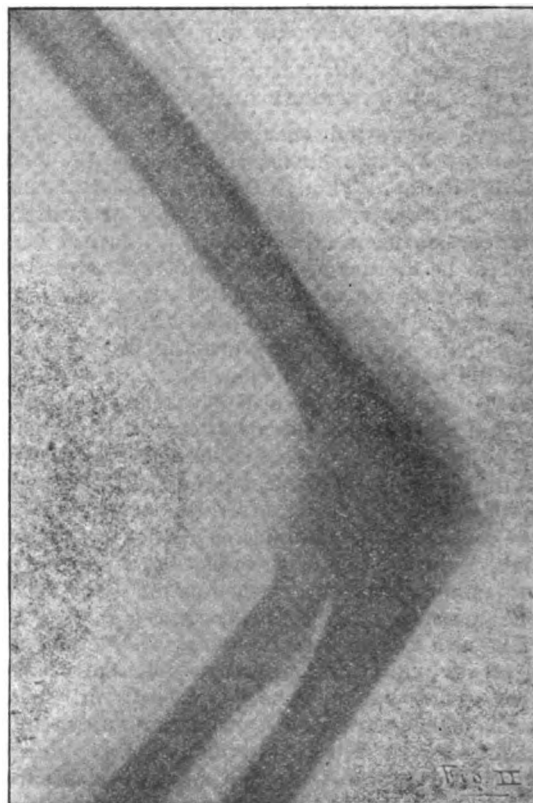
tion, and the condition had varied in severity. There had been periods when there was superficial inflammation, the swelling greater and the pain worse. The only constant symptom had been a certain limitation of motion. No other joints had at any time been involved. There was no definite history of injury.

The examination showed an elbow slightly swollen over the outer condyle but without acute inflammation. Flexion was possible to a little beyond a right angle, and extension to within 45° of straight. Rotation was limited. The axillary glands were slightly enlarged. No positive diagnosis was made. A rheumatoid condition with the atrophic changes taking place was considered, as were also a tubercular lesion and an osteo-

myelitis. The only sign suggesting malignancy was the slight enlargement of the axillary glands.

An x-ray to further establish the diagnosis, was taken and is shown in Fig. I. The negative was a surprise, and showed a definite bone lesion; evidently there was a myelitis of some sort, with either a bone cyst or abscess cavity communicating with the joint.

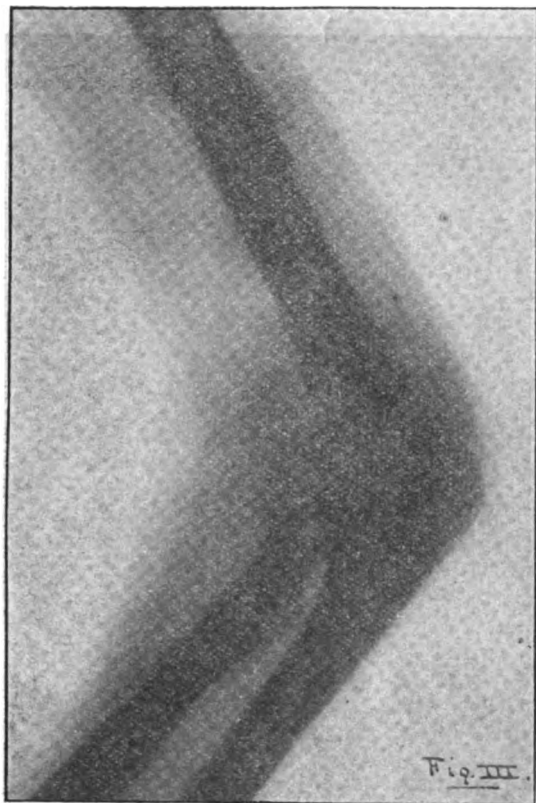
The patient could enter only on a free bed. The hospital was full, and there being no acute symptoms, she was placed on the waiting list of applicants. The diagnosis of a low grade osteomyelitis with suppuration was suggested; immobilization applied and tonic treatment advised. When the chance for entrance came, either the notification was never sent, or the patient failed



to respond, for nothing was heard from her until she appeared at the Out-Patient on March 8, 1901, six months after she had first been seen. The mobility was practically the same as at the first examination. There was no swelling or tenderness, and pain only on extremes of motion. A bony spur could be felt about a half an inch above the external condyle. The patient reported simply for observation, and her only discomfort was in using the right arm for feeding herself and dressing her hair.

The case becomes somewhat humiliating at this point, for a greater experience in interpretation of x-ray plates might have suggested the correct final diagnosis. The skiagraph (Fig. II) now taken showed what was thought to be a partial

healing of the old cavity, but enough attention was not paid to a rarification of the bone structure in the condyles. She was advised to report at short intervals, but the next note of her appearance is on May 27, 1901, eight months after the first examination, two months after the last note and x-ray. She reported because of pain and swelling over the inner condyle. The elbow had continued to cause her slight inconvenience, until one day she had wrenched her arm in hanging out clothes, and the acute symptoms had followed almost immediately upon the trauma. The motion of the elbow was much less free than at any previous observation; there was more swelling and the skin had a somewhat angry look. The process still seemed wholly local. An x-ray at



this time (Fig. III) was at once suggestive of the real condition. There had been a spontaneous fracture above the condyles and the more general involvement of the bone by the process was evident.

In the hospital an exploratory incision by Dr. Goldthwait revealed a highly vascular neoplastic growth. The report of the microscopical examination of the tissue by Dr. Pratt of the Pathological Department of the Harvard Medical School is subjoined.

*Gross examination.*—Two small pieces of soft, grayish, homogeneous, translucent tissue, each about 4 mm. in diameter.

*Microscopic examination.*—The tissue consists of closely packed cells, with round and oval

vesicular nuclei; the cell outlines are not distinct. There is but little intercellular substance. Numerous thin-walled blood vessels pass among the tumor cells. Mitotic figures are common, hence the tumor is growing with considerable rapidity.

*Diagnosis.*—Round-celled sarcoma.

The patient was transferred to the Surgical Service, and by the courtesy of Dr. E. A. Pease I am enabled to report the short subsequent history.

The arm was amputated at the point of election on June 25, 1901. The patient insisted upon having the arm interred in the family lot, and examination of the gross specimen was permitted only so far as to show the marked bony involvement which the x-ray indicated. The patient was discharged relieved on July 7, after an uneventful convalescence with a firmly healed first intention stump. I have seen the patient on Jan. 23, 1902. She is in excellent health; no axillary glands or other signs of recurrence could be discovered. The scar is soft and without nodules. She is caring for six children, and about to be confined with a seventh.

The case has seemed to me worth reporting for three reasons: (1) Because it teaches the necessity of more careful and experienced interpretation of x-ray negatives, and their great value when so interpreted; (2) because the history and subjective symptoms are not those we usually associate with a neoplasm as malignant and rapidly growing as the pathological examination revealed this to be; (3) because in the light of recent experiments it seems possible that the application of the x-ray, while perhaps not materially retarding the growth, exercised an analgesic effect, and may have been partially responsible for the few symptoms. Thus, without accurate interpretation and good technique, this method of examination and valuable therapeutic measure may actually obscure the diagnosis.

#### AN UNUSUAL FAMILY HISTORY OF TUBERCULOSIS.

BY A. H. WILLIAMS, M.D., BOSTON.

HOWARD C. and Frances C., ages respectively 23 and 21, a brother and sister, are both suffering with tubercular bone disease. Howard has a lesion of the knee, two and one-half years in duration, which has been doing well since excision, eighteen months ago. He injured his knee in boyhood. Frances had tuberculosis of the hip joint, following a fall from a carriage when she was three years old. This lesion seems to be quiescent, but she developed an acute tuberculosis of the shoulder three months ago, and has had it excised. Her shoulder has been lame from an injury for many years.

Their mother, Mrs. C., nearly died twenty years ago from pulmonary tuberculosis, but recovered and now seems well. Her family history is of some interest. Her mother was one of three sis-

ters, Sullivan, who came to Maine from Ireland. Their parents died in Ireland: Mrs. Sullivan in childbirth, Mr. Sullivan of some unknown disease, and two Sullivan children died in Ireland of unknown diseases. Of these sisters, Ellen Sullivan died at the age of 90, her husband at 60. They had thirteen children, six of whom lived to be over 20. All thirteen died of pulmonary tuberculosis. The second sister, Julia, is living, aged 70; has had four children and two grandchildren, all non-tubercular. The third sister, Katherine, is living, over 71, her husband 73. They have had twelve children; eight are dead, five in infancy and two, at the ages of 27 and 22, of *pulmonary tuberculosis*. Of the four living, two have had pulmonary tuberculosis and recovered; one of these is Mrs. C. There are two grandchildren besides those in the C. family, and both are well.

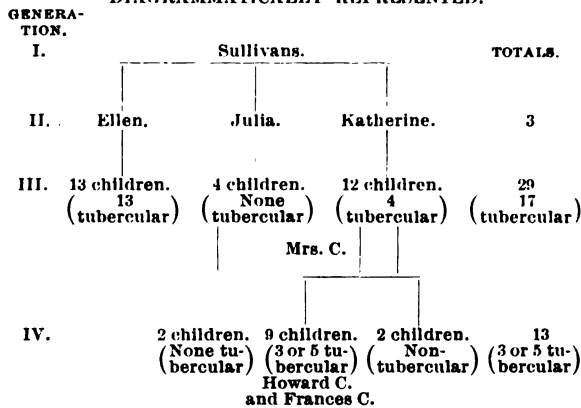
Mrs. C. has had nine children; one has died of pulmonary tuberculosis at the age of 6, one of symptoms resembling tubercular meningitis; of her six living children, two have tubercular bone disease and a girl of fifteen is beginning to have enlarged cervical lymph nodes.

In the second generation, then, of these sisters, seventeen out of twenty-nine children were tubercular; in the third, three, or probably five, out of thirteen.

No tubercular history on any father's side can be found, except that Mr. C. has a nephew with pulmonary tuberculosis. His parents both lived to be 88.

This history is of interest because of the longevity of the survivors, and because of the distinct history of trauma in the only cases where the lesion was in the bones and not in the lungs.

#### DIAGRAMMATICALLY REPRESENTED.



The virulence of the tuberculous inheritance in this family has apparently been attenuated by the good blood brought into the family through the males who have united themselves to it by marriage.

DR. WILLIAM W. KEEN of Philadelphia has recently been elected an honorary member of the German Surgical Association at the recently held thirty-first annual session. He has also been appointed honorary president of the first Egyptian Medical Congress which will be held in Cairo, in December.—*Medical Record*.

#### A CASE TO ILLUSTRATE THE ADVANTAGES OF THE CORRECTION OF THE DEFORMITY OF POTTS' DISEASE.

BY H. S. WARREN, M.D., BOSTON.

J. B., 15 years of age, came to the Orthopedic Department of the Carney Hospital Aug. 23, 1901, with a history of having had Potts' disease for ten years. At entrance he was in very poor physical condition. He stood with the body deflected to the right side so that the lower ribs overlapped the crest of the ilium. A discharging sinus was present in the median line over the sacrum, and the boy complained much of pain and discomfort in going about.

An x-ray showed extensive tubercular disease of the lower lumbar vertebrae. Fig. I shows the patient at entrance.

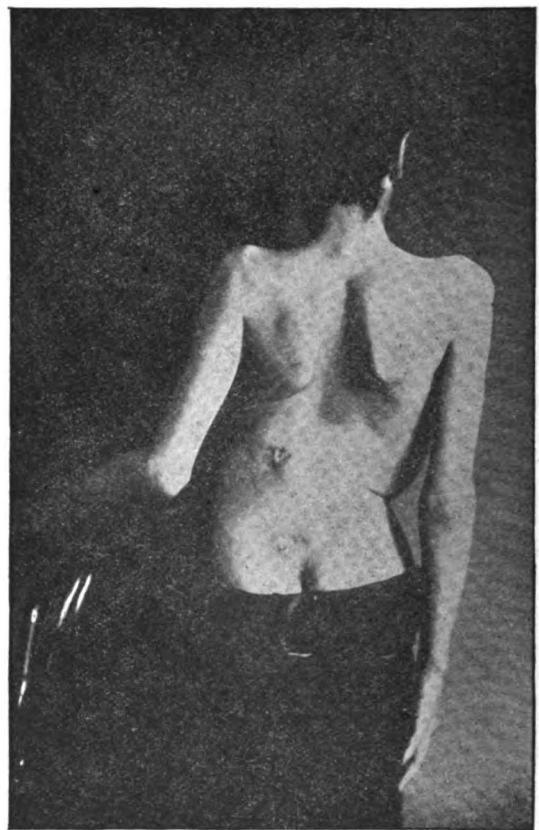


FIG. I.

He was admitted to the wards and a series of plaster jackets were applied with the patient on his back on the frame, each time correcting the position, but without the use of force, with the result that his general condition improved, discharge from the sinus became much less, and his height was increased three and one-half inches.

From Fig. II, taken four months after treatment was begun, it is seen that he stands with only a very slight deviation of the spine at the seat of the disease.

He now wears a leather jacket, and his general health continues to improve.

A study of the x-ray in this case shows that the maximum yielding of the spine is somewhat above the seat of the disease, and is not dependent upon the loss of the substance in the bodies of the vertebrae.

In the forcible correction of deformity at the point of disease, as practised by Calot and others, it has been shown pathologically that the material thrown out in the process of repair does not contain enough calcium salts and other bone-producing material to give it a consistency anywhere near that of the bone which it replaces. As a result relapses are very common, which, together with the danger of dissemination of the disease, outweigh the advantages to be gained.

Under these conditions one must look to the gradual correction of faulty compensatory curves, as in the above case, in order to reduce the de-

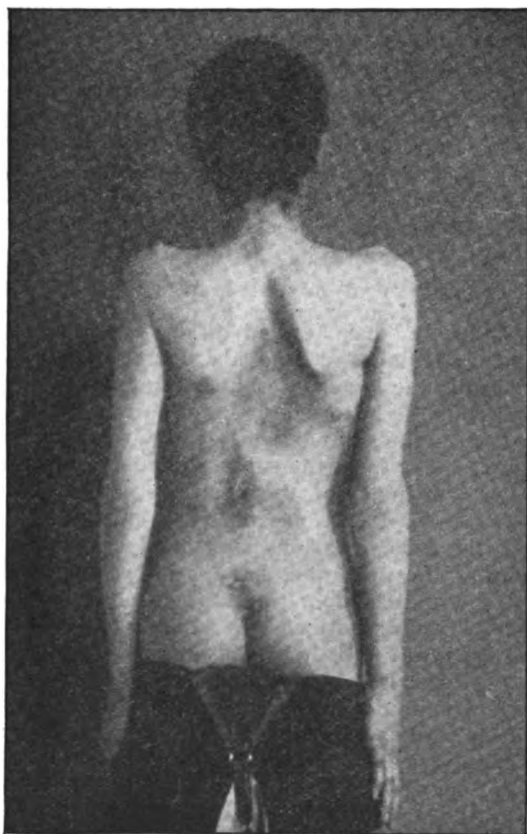


FIG. II.

formity to a minimum. A second and no less important advantage to be gained by correction of position in these cases is the effect of the improved position upon the mental and physical condition of the individual; a feeling of hopefulness is inspired, and a marked improvement in the general health is commonly noted.

THE Royal Infirmary at Aberdeen is the recipient of a gift of \$150,000 from Lord Mount-Stephen, who previously cleared the institution from a debt of \$125,000.—*American Medicine*.

## EXCISION OF THE HIP FOR CONGENITAL DISLOCATION.

BY W. E. BLODGETT, M.D., BOSTON.

GENEVA H., age 12, entered Out-Patient Department Sept. 27, 1901. Deformity and disability of right hip noticed as long as the family can remember.

Healthy girl. Characteristic lunging gait. Head of right femur felt dislocated upwards and backwards on the dorsum. Trochanter much above Nélaton's line; cannot be pulled down. Actual shortening of leg, two inches. Atrophy of thigh, two inches; of calf, one-half inch. Permanent flexion, 25°; permanent adduction, 15°; permanent internal rotation, 40°. Correction of the permanent deformity appears not to be resisted by muscle or fascia. Motion in flexion and in adduction, normal; in internal rotation, abnormally free.

Oct. 16. Admitted into house.

Oct. 18. Bloodless reduction under ether was tried, but the full strength of six men, variously applied for half an hour, forced the trochanter downwards only half an inch. The child was put to bed, and 15 lbs. traction applied. This application of traction was continued until the open operation.

Nov. 11. Oblique incision over trochanter. To expose the neck of the femur freely, the gluteus medius had to be divided in the direction of its fibres at its trochanteric insertion. The neck was not over three-fourths of an inch long, and extended inwards, backwards and downwards (extreme coxa vara). There was no head. The neck was chiseled off, and the capsule and gluteus medius were sutured with silk, leaving a small wick. Light extension and sand-bags, with limb in corrected position. Healing was by first intention, and Dec. 1 patient was discharged with crutches, and plaster spica holding the limb extended, 15° to 20° abducted, and somewhat externally rotated.

Dec. 20. Out-Patient Department. Plaster removed. Motion in flexion free; in abduction, to 20°; in external rotation, slight; in internal rotation, abnormally free. No permanent flexion. Great improvement in the gait. Plaster not re-applied. To continue crutches and to use the limb a little.

Jan. 8. High sole ordered, but the sole is to compensate for only a part of the shortening, in order to encourage abduction.

Jan. 13. Gait has become worse than immediately after removal of plaster—marked return of the former lunging. Shortening, two inches; trochanter can be pulled down one-half inch. Motion in flexion, adduction and internal rotation, as before. Permanent flexion, 10°; permanent adduction, 5°; permanent internal rotation, 5°. By continued pressure, the permanent adduction can be overcome, and the leg forced into a slightly abducted position; further abduction is resisted by marked tenseness of the adductors. Directions given for massage and for active and pas-



sive exercises designed to stretch the adductors.<sup>1</sup> As the patient is going home to the western part of New York, she is not to return till the latter part of the spring. Goes out with high sole and with crutches, which are to be gradually omitted.

The experience of Continental operators has condemned excision of the hip for treatment of congenital dislocation.<sup>2</sup> In this case, however, radical cure was believed impossible, and excision was performed to diminish the postural deformity, especially the permanent internal rotation, which appeared due chiefly to impingement of the femoral head on the iliac dorsum, posterior to the trochanter. No increase of shortening has yet resulted, and, although flexion and adduction have already recurred to a degree sufficient to make ultimate recurrence of the original amount not improbable, the internal rotation is so well corrected as to warrant hope of permanent improvement.

## Medical Progress.

### RECENT PROGRESS IN LARYNGOLOGY.

BY A. COOLIDGE, JR., M.D., BOSTON.

#### THE TREATMENT OF NASAL POLYPI.

In a discussion by the Laryngological Society of London,<sup>1</sup> Dr. Lambert Lack reviews the etiology of nasal polypi and describes his radical treatment based upon this etiology. To Woakes is due the credit of first suggesting that disease of the bone is the primary cause of polypi, although his theory of necrosing ethmoiditis has been abandoned. The bone changes in many cases are now commonly described as rarefying osteitis. The process commences as a proliferation of the cells in the deeper layers of the periosteum. The bone, especially of the middle turbinate, ultimately becomes disintegrated, and the fragments are slowly eaten away and absorbed. There is no true necrosis. The outlines of the bone may ultimately be lost, the middle turbinate can no longer be recognized, and the whole ethmoid may become affected. The polypi themselves are merely hypertrophies of the edematous mucous membrane covering the affected bone. In some cases the disease is arrested, especially when there are but one or two polypi present, which after removal do not recur. Where the disease is extensive the removal of the polypi does not help the original disease; treatment must then be directed towards the eradication of the bone disease. When the disease of the bone is limited to a small area, this may be clipped away with a good prospect that it will not recur. In cases of extensive bone disease, with many polypi involving an extensive part of the ethmoid, or where there has been recurrence after

other operations, the author advocates a more radical operation under a general anesthetic.

The patient is turned well over on to his side and the whole ethmoid region examined with the finger, both through the nose and through the post-nasal space. The middle turbinate may be removed with a spokeshave, and any large polypi with forceps. Then the lateral mass of the ethmoid should be thoroughly scraped away by means of a large ring knife; for this sharp spoons are quite useless. In this way large masses of polypi, degenerated mucous membrane and fragments of bone are removed. Healthy parts of the ethmoid are easily distinguished by the finger, and even by the curette. To complete the operation a small ring knife may be used, but this must be employed with the greatest care. Great caution must be used in the vicinity of the cribriform plate, but the whole inner wall of the orbit may be scraped away with impunity. (!) During the operation the post-nasal space may be plugged with a cotton sponge; and after the operation the nasal cavity is packed with gauze, which is renewed every two or three days for a fortnight. After five to eight weeks a large dry cavity lined with healthy mucous membrane will be seen. The author has operated fifty or sixty times, and has seen no serious results following the operation.

#### TREATMENT OF COLLAPSE OF THE ALA NASI.

Walsham<sup>2</sup> has devised an operation for preventing collapse of the ala during inspiration. Normally the lower lateral cartilage is doubled on itself like the letter U, the inner part being in contact with the septum while the outer part holds the ala away from the septum during inspiration. If the resiliency of the cartilage is lost the ala draws inward and prevents the entrance of air into the nose. Various rings and expanders for holding the alæ open have been recommended, but these are seldom tolerated for any length of time. Having noticed that a small ball of cotton pushed into the little pit at the angle of bending of the lower lateral cartilage was sufficient to keep the ala from drawing in during inspiration, the author made a roll from a strip of mucous membrane dissected from the vestibule, and rolled this into the angle. The epithelial lining was removed from the strip, which was left attached at its base. The epithelium was also removed from the little pit, the strip of tissue rolled up like a bandage and inserted into the pit, where it was held by a suture. Great care must be taken to preserve the vitality of the strip. In this way the angle of the bend of the lateral cartilage is filled and the ala held away from the septum.

#### CORRECTION OF SADDLEBACK NOSE BY SUBCUTANEOUS INJECTION OF PARAFFIN.

At a recent meeting of the Laryngological Section of the New York Academy of Medicine,<sup>3</sup> Dr. Harmon Smith presented three cases to illustrate

<sup>1</sup> Section of the adductors may later be advisable.

<sup>2</sup> Hoffa: Sur l'Opération Sanglante de la Luxation Congénitale de la Hanche. Report Thirteenth International Medical Congress, Paris, 1900. Sect. de Chir. de l'Enf., p. 1.

<sup>3</sup> See Laryngoscope, March, 1901.

<sup>2</sup> Lancet, March 30, 1901.

<sup>3</sup> Jan. 22, 1902; see Laryngoscope, February.

the effect of subcutaneous injections of paraffin for the correction of nasal deformities. This had been tried by Gersumy of Vienna, in 1900, and there have been two reports of such cases in this country. Dr. Smith had begun his work in this field by experiments on the cadaver, having raised the temperature of the tissues to the normal temperature of the human body. It was found that the paraffin spread itself out over the nose, forming a perfect cast of the nasal bones beneath. An experiment on a rabbit showed that the paraffin was inert even in the peritoneal cavity, and no reaction resulted. There was a tendency towards encapsulation on the part of nasal tissues. A paraffin having a melting point of 110° F. was used. After sterilization it was again melted and the bubbles of air allowed to escape, and then an aspirating syringe with a large needle was filled with the paraffin, and submerged in hot sterile water until ready to make the injection. The point of the needle was carried into the tissues well beyond the point of greatest deformity. It was found that the paraffin remained plastic for about half a minute, and during this time could be molded.

#### THE ANATOMY OF THE ACCESSORY SINUSES.

The difference in size, in shape and in position of the accessory sinuses in different skulls, and even in the opposite sides of the same skull, have become familiar by the works of Zuckerkandl, Hajek, Lothrop and Hartman. These relationships are not only interesting from an anatomical point of view, but they are also of great importance in the understanding and treatment of disease in this region. The relation between the antrum and the sphenoidal sinus and the ethmoid cells has been farther studied by Onodi<sup>4</sup> of Budapest.

The maxillary and sphenoidal sinuses may extend towards each other, so that there is only a thin plate of bone separating them. There is often in the sphenoidal sinus a recess, extending in the direction of the antrum, which may be so developed as to narrow the posterior nasal choana, and if there happens to be a correspondingly large recess in the antrum, to come into the closest relationship with it. The sphenoidal sinus may also extend towards and even communicate with the posterior ethmoid cells, and in this way form a part of the roof of the antrum. The anterior ethmoid cells may communicate directly with the antrum. The relative positions of the ostium maxillare and the opening of the frontal duct is a varying one. The antral opening may be in front or directly below the other. This explains the frequent extension of empyema from one sinus to another, and the possibility of treating one through another.

#### AN OPERATION FOR REACHING THE NASAL CAVITIES.

In order to reach new growths in the nasal cavities or the accessory sinuses, such as fibrous

<sup>4</sup> Fränkel's Arch., 3, xi, 1901.

tumors growing from the base of the skull, Loewe<sup>5</sup> cuts through the whole length of the septum, beginning under the lip, then opens the antra through the canine fossa, and cuts through the internal and external antral walls on each side. The floor of the nose can then be forced down upon the tongue, giving an extensive means of access to the nasal cavities under the upper lip. After the growth is removed the palate is pushed back into place, without any resulting deformity.

#### THE TUNING FORK FOR DIAGNOSIS OF SINUS DISEASE.

Dr. D. A. Kuyk of Richmond<sup>6</sup> suggests the use of the tuning fork as an aid to the diagnosis of fluid in the maxillary and frontal sinuses. He has found that a patient hears a tuning fork over the antrum and molar teeth much more distinctly through a normal cavity than through one containing fluid. On the other hand, increased thickness of bone increases the sound, thus acting as a control to transillumination.

#### ILL EFFECTS FROM BANDAGING A BROKEN NOSE.

Although hardly coming under the head of recent progress, the following from Dr. Jonathan Wright's recent sketch of "The Nose and Throat in the History of Medicine"<sup>7</sup> may not be entirely out of place.

Hippocrates indulges in some satirical and still instructive remarks concerning bandages for a fractured nose: "Those who put great store by a senseless dexterity rejoice to meet with a fracture of the nose in order to apply a bandage. For a day or two the physician takes great pride in himself, and the patient rejoices; but the latter soon tires of wearing the bandage, which is annoying; as for the doctor, it is enough for him to have shown that he understands how to put on various bandages on the nose. Such a bandage does, however, quite the contrary to what is desired; on the one hand, in those in whom the nose had been sunken, it becomes markedly more sunken if pressure is exerted over it; on the other hand, those in whom the nose has been dislocated to the right or to the left, either in the cartilaginous or in the upper part, these evidently, far from deriving any advantage from a bandage placed on it, suffer harm from it."

#### THE RELATION BETWEEN TONSILLITIS AND RHEUMATISM.

The view is generally accepted that there is some connection between tonsillitis and rheumatism, but the relation between the two is not now considered as intimate as it was ten years ago. At that time peritonsillar abscess and acute tonsillitis were, in many of our textbooks, looked upon as manifestations of rheumatism; now the former is generally thought to have nothing to do with it, and the latter only occasionally. A recent paper on the subject by St. Clair Thomson<sup>8</sup> re-

<sup>5</sup> Monats. f. Ohrenheilk., 1900.

<sup>6</sup> Laryngoscope, February, 1901.

<sup>7</sup> Loc. cit., July to November, 1901.

<sup>8</sup> Practitioner, January, 1901.

views the literature of the subject and draws concise and judicial conclusions on our present knowledge. The association between tonsillitis and rheumatism is expressed from two points of view: one, that the rheumatic poison enters the system through the tonsil, the inflammation of which is the first local expression of the disease; the other, that the tonsillitis, in certain cases, is one of the manifestations of the rheumatic diathesis. Further knowledge is required as to the nature of rheumatism itself, and also to the various causes and forms of tonsillitis associated with it. It is understood that a certain number of cases of acute rheumatism are preceded by a faucial angina in a proportion varying from 30 to 80%. Both have many etiological points in common — seasons of the year, cold, wet, fatigue, vitiated air, etc. The connection between the two, though undoubted in a number of cases, is not yet clearly established, neither is the particular affection of the throat which is associated with rheumatism. Apparently it is not peritonsillar abscess. The tonsil may be the port of entry of the rheumatic virus, even though the appearance of the throat gives no indication of its being affected. Many cases of tonsillitis are considerably benefited by the administration of salicin or salicylate of soda, but this does not prove the rheumatic nature of the disease.

In order to understand the subject properly we should endeavor both to differentiate the different forms of angina and to discover the true nature of rheumatism.

#### THE REMOVAL OF THE TONSILS IN ADULTS.

The removal of tonsils in adults is not the simple matter that it is in children. In a short paper on this subject Lack<sup>9</sup> advises caution on two accounts, hemorrhage and the effect on the voice. In the large fibrous pear-shaped tonsils sometimes met with he believes that serious hemorrhage may be expected in one out of three or four cases, if cutting instruments are used. With small tonsils the danger is much less. The method to be employed for removal depends upon the case. The galvano cautery may safely be used for reducing the size of the tonsil, but it will not remove it. Tonsillotomy should not be done in adults with very large tonsils because of the danger of hemorrhage. The removal with the cautery snare has no advantages over other methods and leaves a bad wound, with danger of secondary bleeding. The cold wire snare, or ecraseur, has great advantages in cases of much enlarged tonsils. It is more painful than cutting, but can often be done under cocaine. Lastly, enucleation is done by making an incision through the mucous membrane between the anterior pillar and the anterior border of the tonsil, through which the finger or blunt instrument is introduced and the tonsil shelled out of its bed. It is important to keep outside the tonsil capsule, this being but loosely attached to the surrounding areolar tissue. A general anesthetic is advisable. There is no risk

<sup>9</sup> *Journal of Laryngology*, October, 1901.

of hemorrhage, the vessels being torn across outside the tonsils, where they are healthy. The tonsil is completely removed — an important point in cases of frequently recurring tonsillitis or peritonsillar abscess.

In regard to the effect of the removal of the tonsils on the voice, the author has repeatedly met with cases in which a singing voice has been lost or the speaking voice weakened. The greater the enlargement and the longer the patient has accommodated himself to the condition, that is, the older he is, the greater the risk.

#### INFECTION OF THE LARYNGEAL VENTRICLES.

A light on the question of non-diphtheritic membranous laryngitis appears in two cases reported by Harne.<sup>10</sup> In both, the children developed a croupy cough, dyspnea quickly followed, and tracheotomy was done. Repeated cultures from the surface and from pieces of membrane coughed up from the larynx failed to show any diphtheria bacilli. After death, cultures from the laryngeal ventricles showed the presence of these organisms, while cultures directly from the freshly exposed surfaces of the larynx and trachea were negative.

#### SINGER'S NODULES.

Chiari,<sup>11</sup> in a careful study of nine typical nodules, imbedded and cut serially, found that three were formed by simple hypertrophy of the epithelium, and the connective tissue immediately beneath it, the remaining six showed a structure not unlike that of papilloma. In none of them was there the least indication of glands. Frankel and Alexander have demonstrated remnants of glands in similar nodules, and have been led to believe that these glands had some casual relation to the nodes. Chiari, however, has come to the conclusion that the nodules are circumscribed hypertrophies of the edge of the cord, due to long-continued irritation. If a gland happens to be at this spot, which seldom occurs, it may become involved in the structure, but it is not the cause of it.

In the last International Medical Congress, in a discussion on the subject of "Singer's Nodes," the prevailing opinion as to treatment was that, if rest and vocal hygiene were not sufficient, removal with fine forceps is indicated.

#### THE DISINFECTION AND CLOUDING OF LARYNGEAL MIRRORS.

The common custom of disinfecting laryngoscopic mirrors by immersion in a 5% solution of carbolic acid, which necessitates drying, warming and testing the temperature on the back of the hand, is not ideal from a standpoint of cleanliness. A well-made mirror should stand boiling in a weak solution of bicarbonate of soda. Kirstein recommends coating the surface of the mirror with soap, to prevent clouding with the breath. This requires time, and is only practical when

<sup>10</sup> *Journal of Laryngology*, June, 1901.

<sup>11</sup> *Arch. f. Laryngol. and Rhinol.*, Bd. xi, H. 3.

there is not at hand an easy means of warming the glass.

Baurowicz<sup>12</sup> recommends the method of Ruprecht, who uses a one-half per cent. solution of lysol. By dipping the mirror into this solution it is covered with a film, which, without further preparation, prevents clouding.

Kassell<sup>13</sup> uses a 5% solution of bicarbonate of soda for the same purpose.

#### PAPILLOMA OF THE LARYNX IN CHILDREN.

The treatment of papilloma of the larynx in children is an important subject and one in which there is still much difference of opinion. An interesting paper on this subject by G. Hunter Mackenzie<sup>14</sup> advocates tracheotomy, without attempting removal of the growths, the tracheotomy tube to be worn until the disappearance of the papilloma, generally a year or two. Concerning thyrotomy the author believes that a more unsatisfactory method of treatment could hardly be devised. Apart from the risks attendant upon its performance, it is invariably followed by recurrence.

There is not the same objection to endolaryngeal operations in regard to immediate and remote risks. The most serious objections are the difficulty of performing them in very young children, and the impossibility of carrying them out thoroughly and radically in those of any age. If thyrotomy, even with thorough cauterization or removal of the vocal cord or other portions of the larynx from which they grew, fails to prevent recurrences, it is most unlikely that such an uncertain operation as endolaryngeal removal will succeed. In some instances recurrence or recrudescence may ensue almost immediately after operation; in others, after a few months; rarely, after a year.

In some cases tracheotomy may be a matter of urgency; in others it may be preliminary to other operations; or, again, it may be performed with a curative object. "Virgin" cases are more rapidly benefited by tracheotomy than those which have undergone either thyrotomy or endolaryngeal operations. A point of some importance for determination is as to the period when tracheotomy should be done. As children with laryngeal papillomata occasionally indicate a tendency to develop sudden and intense dyspnea, a safe rule to follow would be to open the trachea whenever complete and permanent aphonia is present, without waiting for the onset of dyspnea. It is right, however, to bear in mind that infraglottic papillomata may be present without much vocal alteration, but with considerable respiratory disturbance.

Intubation has been made use of, but, upon the whole, the general opinion is that it is unsuitable.

#### LARYNGEAL PARALYSES IN TABES DORSALIS.

A good review of this subject, with the results

of his own investigations, is given by Sendziak.<sup>15</sup> This analysis includes statistics from 124 cases of laryngeal paralysis in tabes dorsalis. These paralysees almost exclusively affect the abductors. Besides the abductors, paralysis of the adductors also was diagnosed in a few cases, principally the thyro-arytenoid muscles. Complete paralysis of the recurrent occurred sixteen times, in a few cases of which there existed posticus paralysis of the other side. Partial recurrent paralysis, that is, paralysis of the circo-arytenoid muscles (paralysis postici), was observed in eighty-seven cases, bilateral fifty-three, unilateral thirty-four. In nineteen cases, only paralysis of the vocal cords in general was noted. From this analysis one is compelled to regard the posticus paralysis as a special symptom of tabes, concerning which Burger for the first time called attention. This can for years remain as such without going over into complete recurrent paralysis. Laryngeal paralysis may for a long time precede the other objective symptoms of tabes dorsalis. The symptoms commonly characterizing paralysis of the larynx are in the majority of cases absent; in unilateral paralysis of the postici neither hoarseness nor disturbances of breathing are present. Hoarseness is observed only in bilateral paralysis and principally in the extremely rare bilateral paralysis of the recurrent nerves; in the bilateral posticus paralysis, however, we have to do with symptoms of stenosis which sometimes necessitate tracheotomy. The posticus paralysis is characterized by the position of phonation of the vocal cords, the paralysis of the recurrent nerves by the cadaveric position. The prognosis of laryngeal disturbance in the course of tabes dorsalis is, with the exception of bilateral posticus paralysis, not bad. Treatment is in the majority of cases useless, in the absence of pronounced subjective symptoms. Tracheotomy may be necessary where dyspnea endangers life.

#### EXTRACTION OF FOREIGN BODIES FROM THE BRONCHI.

The extraction of foreign bodies from the bronchi under direct illumination has been studied by Killian during the last few years. Two additional cases are reported by Wild,<sup>16</sup> assistant in Killian's clinic. In the first case, an adult, a long speculum passed through the mouth and larynx showed a piece of bone in a bronchus. On account of secretion and coughing it could not be extracted, and it was necessary to do tracheotomy and use the shorter tracheal tube. In the second case, a child of six, a bean was successfully removed from the right bronchus by the long tube through the mouth, under chloroform anesthesia. In the latter case, from lack of suitable forceps, the bean was broken and had to be removed in fragments. The author concludes from the experience furnished by this clinic that perfection in technique will make it possible to

<sup>12</sup> Fränkel's Archiv., Bd. xi, H. 3.

<sup>13</sup> Ibid., Bd. xii, H. 2.

<sup>14</sup> Journal of Laryngology, September, 1901.

<sup>15</sup> Annals Otology, Rhinology and Laryngology, 1901.

<sup>16</sup> Arch. f. Laryngol., Bd. xii, H. 2.

extract an increasing proportion of foreign bodies in the bronchi without the necessity of a previous tracheotomy. Reflex coughing can be reduced by morphin subcutaneously and cocain locally. Different kinds of hooks and forceps should be at hand, so that friable bodies may not be broken and hard ones securely held. If a foreign body is being rattled about in the trachea, immediate tracheotomy is indicated; but if it is probably impacted in a bronchus, it may sometimes be reached through the mouth. The latter is always difficult, and requires special preparation, whereas bronchoscopy through a tracheal wound is very easy and simple.

### Reports of Societies.

#### MASSACHUSETTS MEDICO-LEGAL SOCIETY.

F. E. JONES, M.D., SECRETARY.

MEETING held Feb. 4, 1902.

DR. E. S. WOOD: I should like to say just a word in connection with the title. At the meeting last June I spoke of this test very briefly as the "Agglutination Test." That term I have found by recent study to be improper. The term "Serum Test" is more appropriate. The agglutination test resulted from the experiments of preparing animals by injecting into the peritoneal cavity defibrinated blood, including the red blood cells, which produce in the blood a substance which will agglutinate the red blood cells; but for that test to work it is necessary that there be red blood cells in the suspected stain. That is impossible in testing a great many dry blood stains. I have changed the title of the test, therefore, for the purposes of this society, to the "Serum Test for Blood."<sup>1</sup>

DR. JULIAN A. MEAD: I should like to ask if this test adds anything to the power of the examiner to detect crime? If there might not have been cases that would have been differently decided, if we had known of this test?

DR. E. S. WOOD: It is a very important addition to our means of distinguishing between human and animal blood. At the present time, by the old tests, no hematologist would venture to testify in court positively as to whether a certain blood stain was due to human blood or the blood of certain animals whose red blood cells average the same in size as human blood cells. Take, for instance, the domestic animals; the dog comes nearest to the human in the size of the red blood cells. I have never testified in any case that a given blood stain could not have been that of some animal; of course, the burden of proof is on the defense. By our old methods (without this recent test) we were able to testify that a certain blood stain gave results, on measuring the red blood cells obtained from the stain, which showed that the blood stain was consistent with its having been made by human blood, and

further than that I do not know that any expert has ever testified. But now, if we obtain a positive result by this serum test, we can say that the stain contains human blood serum and does not contain that of any other animal except some species of monkey. There are certain wild animals, the seal for instance, whose red blood cells measure the same as human blood cells, but the comparison is usually made only between human blood and that of domestic animals.

The rule has been not to testify to a certainty as between human blood and that of any animal whose red blood cells average more than  $\frac{1}{1000}$  of an inch in diameter. Human blood averages  $\frac{1}{3300}$ , and that of the dog  $\frac{1}{3300}$ , which is too near to distinguish with certainty between them, some of the smaller human cells coming within the limits of the dog, and the larger cells of the dog coming within the limits of the human.

DR. W. F. WHITNEY read a paper entitled

#### NOTES ON THE PRODUCTION OF THE TEST SERUM IN RABBITS.<sup>2</sup>

DR. B. H. HARTWELL: I have nothing to say in discussion of this question. I wish to move a vote of thanks to the eminent gentlemen who have presented the papers this afternoon, and in doing so, express my thorough appreciation of what they have said, not only of interest to us, as from a scientific aspect of the case, but from the practical good to the commonwealth. We are interested, with the prosecuting officers, in the maintenance of peace, law and order, and this will enable the prosecuting attorney to present to the court the fact whether or not it is human blood, not as they have done heretofore, that it is not inconsistent with human blood; and I offer my congratulations to Dr. Wood as being the first, as he stated, to go before the courts and state positively that a certain blood stain was produced by human blood, and I move, Mr. President, that a vote of thanks of this society be extended Professors Wood and Whitney for their papers.

Above unanimously voted, and meeting adjourned.

#### THE AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.

SECOND ANNUAL MEETING HELD IN CLEVELAND, MARCH 28 AND 29, 1902.

THE sessions were held in the medical school, the lecture room of the physics laboratory and in the laboratory of clinical microscopy at Lakeside Hospital, all of which are departments of Western Reserve University. The meetings were held under the presidency of Dr. William T. Howard, Jr., of Cleveland; Dr. Ludwig Hektoen of Chicago, vice-president; Dr. Harold C. Ernst of Boston, secretary; and Dr. Eugene Hodenpyl of New York, treasurer. A good representation of the

<sup>1</sup> See page 427 of the Journal.

<sup>2</sup> See page 429 of the Journal.

membership of the association was present, and the papers presented were of unusual interest.

#### FIRST DAY.

#### A DEMONSTRATION OF SMALLPOX LESIONS IN THE SKIN AND OTHER ORGANS.

DR. G. B. MAGRATH and Dr. W. R. BRINCKERHOFF of Boston demonstrated a series of twenty-five very interesting preparations, preserved in Kaiserling's fluid, showing the lesions of variola. The typical, and to some extent the atypical, lesions as found in the skin were shown, also lesions from the internal organs and tissues of the body, particularly those of the testicle, larynx and kidney.

#### ON CERTAIN TUMORS OF THE KIDNEY—HYPERNEPHROMAS, ADENOMAS, CARCINOMAS, EPITHELIOMAS, MULTIPLE FIBROLIPOMAS, ETC.; REPORT OF THIRTEEN ADDITIONAL CASES, WITH DEMONSTRATIONS UNDER THE MICROSCOPE.

DR. A. O. J. KELLEY of Philadelphia made this report. In reporting three cases of aberrant adrenal tissue in the kidney he said that the occurrence of such tissue is most common at the upper pole of the kidney, but illustrations of its occurrence at other regions were given; also of the occurrence of cysts of renal origin in such aberrant adrenal tissue and at the junction of adrenal and kidney tissue. A report of six cases of hypernephromas of the kidney, describing their structural peculiarities with especial reference to the occurrence of cysts and pseudo-cysts; many of the true cysts are to be ascribed to the proliferation of kidney tissue in aberrant adrenal tissue. A report of two cases of tubular and papillary adenoma, describing the differences they exhibit to hypernephromas; also reports of one case of adenocarcinoma of the kidney developing from true kidney tissue; of one case of papillary epithelioma of the kidney developing from the mucous membrane of the pelvis of the kidney, and of one case of multiple fibrolipoma of the kidney.

#### A CONTRIBUTION TO THE STUDY OF SUBMAXILLARY GLAND TUBERCULOSIS,—EXPERIMENTAL STUDIES, WITH THE REPORT OF A HUMAN CASE.

DR. A. J. LARTIGAU of New York said that the literature relating to any form of tuberculosis of the salivary glands is not abundant, and that relating specifically to tuberculosis of the submaxillary glands is limited to less than half a dozen contributions. The writer was unable to find in the literature more than one authentic case in addition to the one which he reported, of submaxillary gland tuberculosis in the human subject. His case was that of a male, sixty-eight years old. From a study of the tuberculous lesion the author concludes that the infection was an ascending one from the ducts of the mouth. From experimental studies he concludes that localization of the infection in the submaxillary glands in cases of general military tuberculosis is uncommon. Trauma, however, predisposes the glands to tuberculous infection in such cases.

#### THE RELATION OF TETANUS TO VACCINATION.

DR. JOSEPH MCFARLAND of Philadelphia read a paper on this subject. The occurrence of several epidemic outbreaks of tetanus following vaccination in Cleveland, Camden and Philadelphia during the year 1901 suggested an analytic study of as many cases as could be collected in order to determine whether their relationship to the operation of vaccination was accidental or referable to the virus. Although vaccination has now been practised for 100 years, tetanus has been observed to follow it with great rarity, so that it is not mentioned as a complication in any of the textbooks except the most recent edition of "Osler's Practice." After careful investigation the following cases were brought together: Cases reported in literature, 14; recent cases with full details 53; recent cases with partial details, 8; rumors—well-founded cases without any details,—24. Total cases, 94. Of these 94 cases 48 were fatal, 10 recovered, the rest were not determined. Of the patients, 13 were adults and 39 were children, the remainder were not determined; 35 were males and 24 females. The chronological distribution of the cases is very interesting, as follows: 1854, 1 case; 1878, 1 case; 1882, 3 cases; 1886, 1 case; 1889, 1 rumored case; 1891, 1 case; 1892, 6 rumored cases; 1893, 1 case; 1898, 3 cases, 2 rumored cases; 1899, 3 cases; 1900, 1 case; 1901, 44 cases, 17 rumored cases; 1902, 5 cases, 3 rumored cases—giving a total of 64 cases and 30 rumored cases.

The cases are, with few exceptions, American, their geographical distribution being: England, 1 case, 1 rumored case; Scotland, 1 case; Cuba, 3 cases; Porto Rico, 1 case, 2 rumored cases; Philippine Islands, 1 case; Canada, 2 cases. United States: Connecticut, 1 case; Illinois, 1 rumored case; Louisiana, 1 case; Maine, 1 case; Maryland, 1 case; Massachusetts, 3 cases, 1 rumored case; Michigan, 1 case; Minnesota, 2 cases; Missouri, 1 rumored case; New Jersey, 17 cases, 2 rumored cases; New York, 4 cases; Ohio, 4 cases, 1 rumored case; Pennsylvania, 16 cases, 14 rumored cases; South Carolina, 1 case; Tennessee, 1 case; Virginia, 1 case; Wisconsin, 1 case; Pacific Ocean, 1 case; Unknown, 6 rumored cases—giving a total of 65 cases and 29 rumored cases.

In order to determine whether in Philadelphia and Camden, in which cities the cases had been most numerous, there was any particular climatic, telluric or atmospheric condition predisposing to the disease, tables were shown on which were displayed all the fatal cases in each city for five years, given by months. When the vaccination cases were deducted from these figures it was found that there were fewer cases of tetanus remaining than had occurred in the previous years. The incubation period was shown to vary from 6 days, the shortest, to 39 days, the longest, averaging 22 days. The average incubation period of traumatic tetanus was shown to be about 10 days. The difference might be explained as depending



upon the superficial inoculation of the tetanus bacilli in the vaccine, and the probable necessity for sufficient time to elapse during which the vaccine disease should prepare the way for the accompanying organisms to develop. In every case there was a good, rarely a bad, "take" of the vaccination. Other accompanying infections were occasionally reported as associated. The social condition varied, some of the patients being dirty children, others being refined and cleanly adults. A few wore shields to protect the arm; the majority did not. The following table shows what relationship existed between the occurrence of cases and the particular brand and form of virus employed:

Virus.	Dry Points.		Glycerinized.				Total.
			Points.		Tubes.		
	Cases.	Rumored Cases.	Cases.	Rumored Cases.	Cases.	Rumored Cases.	
E .....	8 (3)	1	7	0	16	8	40
A .....	1	1					2
M.....					3		3
S .....					5		5
W ....			1				1
M. L..	1						1
							52

From this it is evident that virus E is extremely disproportionate in the number of cases attributable to its influence. It appears probable that of viruses E, A and M about an equal quantity is sold, these producers being the largest in the country. When the cases occurring near the home of virus E, where it can be presumed to have the greatest sale, are deducted from the total charged against it, it is found that the scattered cases are still in far greater number than of any other virus.

A study of the epidemics is of the greatest interest. In the Philadelphia Almshouse and Hospital (Blockley) it became necessary to vaccinate every inmate because of a smallpox outbreak. With viruses on hand about four-fifths of the institution (there are about 4,500 inmates) were vaccinated, the remaining fifth being compelled to wait for a few days until a new consignment of virus arrived. The wards thus excepted were the men's insane wards. With the newly secured virus the inmates of this department were vaccinated a few days later, with the result that in this department sixteen cases of tetanus developed. There was no tetanus in the women's insane wards, and there had not been a case of spontaneous traumatic tetanus in either insane ward for twelve years previously. From these data it seems evident that there is a very intimate relationship between vaccine virus and tetanus, and that at times tetanus bacilli are contained in the virus.

#### THE PATHOLOGICAL ANATOMY OF A CASE OF POLIENCEPHALOMYELITIS.

DR. ALICE HAMILTON of Chicago read a paper on this subject. Polienccephalomyelitis (Wernicke) is an extremely rare disease. The cases reported are mostly old alcoholics. The disease is fatal in ten to fourteen days. The anatomical lesions are those of hemorrhagic inflammation of the gray matter of the cord, medulla and pons. The case in question was a child of five and one-half years; the symptoms consisted in paralysis of the sixth and seventh nerves on the right, inco-ordination of the right hand; death from respiratory failure. Examination showed no hemorrhages, but an inflammation of the gray matter of the cervical cord, medulla and pons, with degeneration of the nerve cells of the anterior horns of the gray matter of the cord, of the greater part of the nucleus of the seventh on the right and part of the nucleus of the sixth. Hyaline bodies, which gave the reaction for mucin but not for amyloid, were present in the neuroglia, perivascular spaces, and in the smaller vessels, formed probably by the post-mortem coagulation of an exudate.

#### MIXED TUMORS OF THE PAROTID REGION.

DR. FRANCIS C. WOOD of New York said that while carcinoma, sarcoma, and possibly adenoma occur in these glands occasionally, the great majority of these tumors belonged to a group characterized by their complex structure, the stroma containing cartilage, mucous and embryonic connective tissue, while the parenchyma was made up of alveoli and strands of cells resembling endothelial cells. While it is possible that some of these stroma cells are due to the proliferation of the endothelium, there are many reasons for considering the parenchyma portions of these complex growths as epithelial in origin. The chief reason for this belief is the fact that epithelial pearls can be found in about 10% of the tumors examined by the writer, and glandular alveoli with cylindrical epithelium in another 10%. The lack of definite morphological characteristics in the remainder of the tumors the writer was inclined to explain by the early embryonic stage at which these tumors were left as remnants from the epiblast lining the buccal cavity, together with portions of mesoblastic tissue from the region of the branchial arches.

#### THE HISTOLOGIC AND HISTOGENETIC FEATURES OF A MALIGNANT MEDULLARY HYPERNEPHROMA OF THE KIDNEY.

DR. JOSEPH C. OHLMACHER reported on the pathological findings in a case of renal tumor. The patient, a woman forty-nine years of age, had suffered from renal pain and hematuria five years before death, with extensive metastases. A medullary origin was ascribed to this tumor because of the arrangement of the reticulum, which precisely resembles that of the dog's adrenal, as shown by Flint. The component cells were like those of the adrenal as was also the widening of

the venules and the blood sinuses as deeper portions of the tumor were reached. Embryonic medullary cells were present in the capsule and permeating into the deeper substances quite like those in the developing adrenal. Cortical cells, cylindrical in shape and arranged as U- or S-shaped cords, were occasionally found in the blood sinuses. The resemblance of these glomerular structures to those in the zona glomerulosa of the horse or dog suggests a support for Kelley's views, that they are reversional in nature. Occasional epithelial-clad tubules in the tumor capsule strongly indicate that they might be remnants of the Wolffian body.

#### REMARKS BASED ON THE BACTERIOLOGIC EXAMINATION OF A CASE OF PARACOLON INFECTION.

DR. E. LIBMAN of New York said the clinical picture was that of a cholecystitis possibly typhoidal in origin. The paracolon bacillus was isolated from the gall bladder, the blood and the urine during life. The blood gave a reaction with the bacillus in a dilution of 1 to 50. A very marked reaction (1-250) was present for the typhoid bacillus. The autopsy showed healing ulcers in the ileum. Dr. Libman thought the case might be one of secondary infection in a case of typhoid fever. He made some remarks on agglutination tests for paracolon bacilli, and showed that the serum reactions were much more complicated in nature than were those made with typhoid bacillus.

#### UPON AN EXTENSIVE OUTBREAK OF FOOD INTOXICATION AND INFECTION OF UNIQUE ORIGIN.

DR. A. P. OHLMACHER of Chicago made a report of a wholesale food poisoning, in which 228 inmates of the Ohio Hospital for Epileptics were severely affected, although no fatal cases occurred. By a process of exclusion, the trouble was traced to a particular batch of oatmeal, which became contaminated with plaster dust arising during the repair of a ceiling in the room in which the oatmeal was cooling after being cooked. The ceiling had been exposed to moisture from the vapor of a steam table, and also to clouds of dust from a nearby road. On the surface of the ceiling bacillus coli communis and bacillus proteus vulgaris were found to be abundant. It is believed that these bacteria in the plaster dust rendered the oatmeal toxic and infectious. Experiments showed the bacteria from the surface of the ceiling to be pathogenic, and toxic substances were isolated from some oatmeal artificially contaminated with the plaster dust.

#### ON THE CHANGES PRODUCED IN THE BLOOD AND THE BLOOD-FORMING ORGANS BY THE SAPOTOXINS.

DR. A. A. BRUERE of Montreal read this paper by title.

#### THE MODE OF ACTION OF CERTAIN HEMOLYTIC AGENTS.

DR. G. N. STEWART of Cleveland gave the conclusions based on a series of experiments on

this subject, which may be stated as follows: (1) Laking action of saponin or sapotoxin, sodium taurocholate, amyl alcohol, ethyl alcohol, ether, foreign serum, heating to 62° to 64° C., is not an action of the same nature as water laking, or at any rate the primary action is not of the same nature; for (a) it is not prevented, although in certain cases it may be delayed, by the addition of sodium chloride and cane sugar, which do not penetrate the corpuscle even when the blood or blood mixture is half saturated with sodium chloride or saturated with cane sugar; and (b) laking by all these agents is obtained in the sediment of blood, from which nearly all the serum is removed by prolonged centrifugation, even when the amount of serum, as estimated by the electrical method, has been reduced to 7 to 8 % of the total volume. In this case there is not enough serum between the corpuscles to cause watery laking, even if it were all to enter the corpuscles. (2) At the same time a marked increase of permeability to electrolytes can be demonstrated in formaldehyde hardened corpuscles acted on by certain of the laking agents, as, for instance, saponin, sapotoxin and sodium glycocholate. Although, as has been shown above, the increase of permeability cannot be the primary cause of laking, it may yet contribute to it. (3) The behavior of nucleated corpuscles, including the corpuscles of adult fowls, the nucleated corpuscles of embryo rabbits, and the nucleated hemoglobin-containing elements in the bone marrow of adult rabbits and dogs, to the laking agents mentioned is the same as that of non-nucleated mammalian corpuscles. The nucleated corpuscles also exhibit the same behavior as the non-nucleated in regard to their permeability by ammonium chloride and urea, and their non-permeability by sodium chloride. (4) Sodium taurocholate causes marked leucocytosis, the leucocytes succumbing about the same time as the erythrocytes. The nuclei of the leucocytes resist the action of the bile-salt longer than the cell-substance, the granules in which disappear rapidly. The lymphocytes appear to resist longer than the larger varieties of leucocytes. Sapotoxin may also cause some leucocytosis, but its action is not so pronounced as that of sodium glycocholate, and numerous leucocytes may still be seen after the erythrocytes have been laked.

#### LESIONS PRODUCED BY THE BLASTOMYCETES (TORULÆ) OF SAN FELICE AND PLIMMER.

DR. EDWARD H. NICHOLS of Boston described with lantern slides the pathological findings in eighteen animals inoculated with the organisms of San Felice, and of twelve with those of Plimmer. There was found local reaction, abscesses and myxomatous nodules. These nodules consisted of a peculiar granulation tissue, of connective tissue, many endothelial cells and few blood vessels. The blastomycetes, usually surrounded by a gelatinous capsule, were found free and in phagocytes. There was little acute inflammatory exudate as a rule, but practically always a few lymphoid, plasma and eosinophile cells. The

reaction in glandular organs is almost entirely confined to the interglandular connective tissue, the basement membrane is resistant, but when broken through the epidermis is destroyed; it does not proliferate. Lymph nodes are always large, myxomatous or necrotic. The blasts may be free in sinuses or in endothelial cells; the lymphoid tissue is finally destroyed and is replaced by proliferated connective tissue and endothelial cells. Lungs: Organisms in the alveolar walls cause proliferation of connective tissue and endothelial cells; this encroaches on and obliterates the alveoli. We have a desquamative pneumonia and atelectasis. The liver is generally free. In the spleen it causes a proliferation of connective tissue and of endothelial cells in the follicles, and destroys them. In the kidney the process is in the glomeruli or intertubular. It destroys the tubules by pressure, with no proliferation of epithelium and very little reaction. The morphology of cancer bodies and yeasts is not identical.

#### BLASTOMYCETIC LUNG LESION IN THE HORSE.

DR. LANGDON FROTHINGHAM of Boston showed lantern slides, and spoke of a blastomycetic lung lesion in a horse, which is, so far as he knows, the only recorded case. The structure of the lesion consists of a delicate connective tissue reticulum or mesh-work in which are numerous nuclei, probably of endothelial origin, and large numbers of blastomycetes. The organism was obtained in pure culture, and probably was a torula. Inoculation of rabbits and guinea pigs with pure cultures result in the production of similar lesions. The pathological lesions in this case seem to be identical with those caused by the torula, with which Dr. Nichols has experimented and described at this meeting. Lantern slides and paintings were exhibited, showing the gross lesion and its histologic appearances, cultures of the organism, and the lesions produced in inoculated animals.

#### XANTHOMA AND XANTHOMATOID LIPOMA.

DR. W. W. WILLIAMS of Boston reported the histologic appearances, with lantern slides, of one case of each of these tumors. The xanthoma was made up of variously sized groups of faintly staining cells, with round, large, vesicular nuclei surrounded by dense connective tissue. This is separated from the epidermis by a thin layer of practically normal connective tissue. Above the groups of cells, in the connective tissue and in the lower layers of the epidermis, are found pigmented cells. The process is thought to be a proliferative one, probably caused by some soluble irritant in the circulation. Macroscopically the xanthomatoid lipoma was found to be of a light brown color and of granular appearance. It consisted of variously sized cells in fibrous trabeculae penetrating the tumor from a dense fibrous capsule. It was thought to be a true new growth and closely related to the simple lipomata.

(To be continued.)

### Recent Literature.

*The Practical Medicine Series of Year Books.* Vol. III: The Eye, Ear, Nose and Throat. One of a series of ten volumes, issued at monthly intervals and covering the entire field of medicine and surgery. Chicago: The Year Book Publishers. 1902.

In this volume the entire field of the subjects above noted has been carefully covered for the year 1901. Extracts from the most important articles published during the year are given, and the arrangement testifies to much painstaking care on the part of the editors.

*A Textbook on Diseases of the Ear, Nose and Throat.* By CHARLES H. BURNETT, M.D., E. FLETCHER INGALS, M.D., and JAMES E. NEWCOMB, M.D. Illustrated. Philadelphia: J. B. Lippincott Company. 1901.

The first third of the book, by Burnett, is devoted to the ear, the second, by Ingals, to the nose, and the third, by Newcomb, to the pharynx and larynx.

A tripartite book labors under certain disadvantages. It is practically impossible to make it homogeneous. Its title is necessarily cumbersome, which again threatens its individuality. When both subjects are by the same author, it may be convenient to bind up the ear and the throat together; when they are by different authors why can they not appear as different books? The names of the first two authors are already well known in connection with textbooks, nevertheless, of the three parts, although all are well done, the third by Newcomb is perhaps on the whole the best.

The section on the ear is treated simply, intelligently and conservatively. It makes a very good textbook, both for the student and for the general practitioner who is obliged to treat any cases which arise in his practice. The section on the nose gives proof of the good judgment and experience of the author. The arrangement of subjects is confusing. Some subjects are better described than others. Hay fever, diseases of the antrum and of the nasopharynx, treatment of septal deviations, and many others are excellent. The third section, including the pharynx and larynx, is well balanced, clear and concise. The chapter on tonsils is good; it begins with the anatomy of the tonsillar region, a subject which has heretofore been omitted from our manuals, and continues with good descriptions of tonsillar diseases, giving due credit to Boston. In the larynx, tuberculosis and malignant disease are well done; it would have been better to have given more space to papilloma in children.

As a whole, the book is simple and straightforward, and as satisfactory for the student as any textbook that we have which covers this field.

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### REFORM IN DEATH CERTIFICATION.

RECENT developments in connection with the Toppan case are of such a character as to call attention to the necessity of decided action to prevent the occurrence of similar cases in the future. The Robinson cases are still fresh in mind, and as a consequence of those murders Mrs. Robinson has been confined in jail for about fifteen years at the public expense. These deaths, together with those which have been attributed to the acts of Miss Toppan, make nearly a score of Massachusetts citizens who have at some time or other lost their lives in consequence of the acts, whether criminal or otherwise, of these two women, and have given to the State an unenviable notoriety, which demands investigation to determine whether there is not something wrong in the present system of death certification which may, in part at least, constitute a contributing cause.

The following extract from a Western paper calls attention to this subject: "We note a dispatch in the daily press from Boston relative to twelve deaths that occurred in Massachusetts under the attendance of a nurse, now under arrest for murder. In no less than *three* of these cases, all in Cataumet, Barnstable County, Mass., the report says that there was 'no death certificate.' In the nine deaths recorded, the causes, 'heart failure,' 'complication of diseases,' etc., accepted by the registrars of even such places as Cambridge, Lowell, etc., argue a very low standard of practical registration methods."

What are the objects of a certificate of death, and how are these objects secured in Massachusetts? And what are the defects of the present system?

The following may be stated as the chief objects of a system of death certification:

(1) The individual certificates constitute a definite record which often has great economic

value in the settlement of claims for life insurance, pensions, property rights in families, and especially in cases of disputed survivorship.

(2) They are of much value to the genealogist, who is in search of questions pertaining to family history.

(3) Taken collectively, they constitute an extremely valuable source of knowledge in the study of the causes, prevalence and distribution of diseases.

(4) They often furnish valuable aid in the detection of crime.

It is to this latter object alone that we desire to call attention. The subject has attracted the notice of the British Parliament, and in 1893 an investigation was made at which Sir Henry Thompson, Dr. Ogle of the registrar general's office, and other noted physicians testified, and urged the necessity of improved methods. The following quotation from the report of the committee shows that the necessity for reform existed:

"Among the class of certified deaths are to be found many deaths attended by unqualified assistants and certified by qualified practitioners who may never have seen the cases; deaths certified by medical practitioners who have not seen the patient for weeks or months prior to death, and who only know by hearsay of death having occurred; and deaths in which the true cause is suppressed in deference to the feelings of survivors. Such cases are numerous, but in addition evidence was given as to cases accidentally brought to light of deaths registered, with a view to insurance or other frauds, of persons afterward discovered in some cases to have been murdered, and in other cases to be still alive; deaths registered under circumstances suggestive of fraud, regarding which it was not known whether the subjects had or had not died, and coffins buried alleged to contain corpses, the deaths of which had not been registered, and concerning which all that is known is that no such persons as those alleged to have been buried had died at the address given to the burial authorities."<sup>1</sup>

Sir Henry Thompson, in testifying before the Parliamentary Committee, urged the necessity for greater precautions to prevent the concealment of crime, and Dr. Ogle stated that one of the chief objects of the death certificate was to prevent foul play and murder.

It is evident that, so far as the certificate of death is concerned, every possible guarantee of protection to the community should be given, by surrounding the certificate with the proper safeguards for making it as definite and as accurate as possible.

<sup>1</sup> Report of Select Committee on Death Certification, British Parliament, 1893.

What, then, are the defects of the system as at present employed in Massachusetts? Other states have already taken action and made much improvement in this direction, and we may profit by their experience.

(1) The method of collecting the death returns is practically the same as it was in 1842. That is to say, all the returns for a single year are forwarded to the central office in a lump after the close of the year, by provision of statute. For a large part of the State these returns are not due at the central office till March 1 of the year following that in which the deaths occurred and were certified; for the cities of Fall River and Worcester, not until April 1, and for the city of Boston, not until May 1. By such a system the central office must necessarily be crowded with work in the collection and compilation of these returns through a part of the year, while another part of the year must be spent in comparative idleness. Under the present system in Massachusetts information in regard to the deaths which occur in January of any given year does not usually reach the central office until at least thirteen months after their occurrence, and those of the city of Boston may not arrive until fifteen months afterward.

How much preferable is a system requiring returns from municipalities at least once a month throughout the year, as has been adopted in many other states. In England the returns are received with such promptness as to permit the registrar general to publish an advance sheet giving much useful information as early as April 1 of the year succeeding that in which the deaths occurred. But in Massachusetts no information is published until nearly the close of the year following, and in the last instance the report for 1900 was not made public until as late as Feb. 1, 1902.

(2) No power is given by law to the central authority in Massachusetts to revise or correct indefinite or defective returns. In the existence of such defective and indefinite returns, it must be confessed there lies an element of weakness and the possibility of concealment of crime. In some states and countries the power to return the certificates or copies of the same to the municipal registrars for correction is granted by law, in others it is very properly assumed by the central authority without waiting for legal permission. The registrar general's "Annual Report for England," for example, states "that the total number of replies received in answer to such inquiries in the year 1896 was 4,221, of which 3,004 contained information which led to the more accurate classification of death causes."<sup>2</sup>

<sup>2</sup> Fifty-ninth Annual Report of Registrar General, England, p. xxix.

In the Massachusetts Registration Report for 1900 comment is made on alleged improvement in the registration of returns from indefinite causes, and yet, in this same report, it appears that 2,384 persons lost their lives in Massachusetts in that year, from such indefinite causes as atrophy and debility 1,072, cephalitis 1,215, and unknown 97, and out of these it is a significant comment that 1,449 deaths, or more than half, were those of infants under a year old. How many cases of infanticide and murder are concealed under these indefinite terms no one can tell. It is only when a score or more of persons are known to have been put out of the way beneath the green sod of the churchyard, through the agency of such persons as Robinson and Toppan, that public attention is called to the matter.

(3) A plan is much needed whereby each death shall receive some sort of official investigation before burial, as is done in some of the countries of continental Europe. If this plan is not practicable then at least all uncertified deaths, or deaths which occur when no physician is in attendance, should be subject at least to a "view" by an official appointed for the purpose. In some of our large cities this is already done. An attempt at such legislation was tried a few years ago, but unfortunately without success. Had such a system been in practice during the past twenty years, it is quite possible that the remarkable career of Sarah Robinson and Jane Toppan would have been arrested at an early period and several lives might have been saved.

(4) The collection and compilation of the death returns is in incompetent hands. That such is the fact has been abundantly shown by such men as Billings, Hoffman, Wilbur, Hewitt and others, all of whom are experts of the highest character, outside of Massachusetts. In the process of evolution of American vital statistics Massachusetts originally held a leading position as an example to other states. The officials who were first given charge of this important work, Palfrey, Walker, Oliver Warner and others, were careful to see that this duty was as well performed as that of any other public department, but during the past few years the quality of the work done has degenerated and fallen far behind that of other states.

One chief reason for this condition is the lack of a well-trained medical head, who should have charge of the work, with power to recommend or to adopt improved measures. The members of the medical profession are responsible for the accuracy of the returns of death throughout the state, and the collection and supervision of these returns should be in the hands of medical men, who alone are competent to judge of their accu-

racy. But, on the contrary, while every other state has by statute placed this important work under medical control, Massachusetts is still in the grotesque position of continuing the work in a department, which for many years has had no medical officer. Is it then to be wondered at that such work has been done in a blundering manner, and is constantly being held up to ridicule by experts in other states? Michigan has recently placed the whole work of supervision of death returns under the care of a competent medical man, with the result of improving the character of the work far beyond that of Massachusetts.

An attempt to remedy these defects was made in 1898, several petitions having been sent to the legislature by the Massachusetts Medical Society and other kindred organizations, for the purpose of securing legislation which would undoubtedly have produced the desired result if enacted, but the movement was defeated. Had this movement been successful, not only would many much needed improvements have been introduced, but a very decided saving of expense to the State would have been effected.

It is not creditable that a progressive State like Massachusetts should have suffered the loss of nearly a score of its citizens through the criminal or insane work of two women. It matters not whether these were deliberate murders or the work of a disordered mind. The loss is the same, and the State should probe the matter to the very bottom to determine, if possible, whether any defects exist in the general system of burials under which such loss has taken place, and whether any remedy can be applied to prevent such wholesale destruction in the future.

#### LIFE INSURANCE REPORTS.

We have before us the report, by Claud Muirhead, M.D., medical officer of the society, of the causes of death among the assured in the Scottish Widows Fund and Life Assurance Society from the years 1874 to 1894, inclusive.

The report is prepared with much care and presents many points of interest, not only to life insurance examiners, but also to students of vital statistics in general. The mortality among males is alone considered.

The contents of the report is arranged under thirteen headings, including details of the diseases of the various systems and organs of the body, so that reference to the various fatal disorders is easy. Particular attention has been paid to the consideration of the two most fatal maladies, consumption and cancer. The average age at death of persons suffering from tuberculosis for

the twenty-one years under consideration was forty-two, and the number of cases yearly has been steadily decreasing, whereas the mortality of cancer, with an average age at death of sixty, has been constantly increasing. This experience coincides, in general, with that in other parts of the world.

Statistics derived from life insurance returns are rapidly becoming of the very greatest importance, but with this increasing importance it is highly desirable that the data and classification of disease be as accurate as our present knowledge permits. Vague terms like debility, dropsy, tumor without further specification, are, of course, misleading and confusing in the final estimate of the causes of death. The report before us makes an admirable attempt to overcome the weaknesses of an established and now somewhat obsolete classification, and with considerable success. That confusion still exists among diseases of the nervous system is not remarkable, in view of the rapid increase of knowledge of the pathological anatomy and differential diagnosis of many affections, which a few years ago were placed in a common class. There is, for example, in this report much vagueness regarding the distinction between apoplexy and softening of the brain, and deaths recorded under the general heading of "paralysis" or "spinal cord disease" naturally have little statistical value. An interesting observation is made regarding "paralysis" and "paralytic dementia," with reference to the apparent increase of the latter disease. It appears that as the diagnosis of paralytic dementia has increased in frequency, that of paralysis, without further modification, has steadily diminished, but that the sum of the two has remained practically constant. We suspect that the general increasing accuracy of diagnosis is responsible for much of the reputed increase in certain diseases.

Admitting all such possible sources of error Dr. Muirhead is convinced that the mortality from cancer is increasing and that the time of death is earlier. In 1861, deaths from cancer represented 1 in 102 deaths from all causes, in this assurance society, and in 1891 they were equal to 1 in 41. These figures are striking and sufficiently disturbing, but we are still inclined to the supposition that the source of error from imperfect diagnosis in such statistics is a factor very seriously to be taken into consideration.

The value of the publication of figures of this sort is not to be underrated, however, on this account, for it is only by the careful scrutiny and criticism of imperfect data, that we may hope to arrive at more accurate facts in the future. However fallacious statistics may be, they are, nevertheless, essential.



## MEDICAL NOTES.

**BEQUEST TO EDINBURGH UNIVERSITY.**—According to the *Philadelphia Medical Journal*, by the will of the late Mr. Robert Irvine, of Royston, Edinburgh University has received \$150,000 for the foundation of a professorship in bacteriology.

## BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, April 23, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 48, scarlatina 10, measles 141, typhoid fever 10, smallpox 40.

**CONNECTICUT HEALTH REPORT.**—According to the report of the secretary of the State Board of Health of Connecticut, smallpox is still occurring sporadically in several towns, but is epidemic only in Waterbury. As an illustration of the possible control of the disease, it is reported that, except in Waterbury, it has been limited to one case in five other towns and to two cases in the other two towns in which it has appeared. Its greater spread in Waterbury is due to the large number of unvaccinated persons, the large foreign population, and the greater facilities for concealing the presence of the disease until many have been exposed to it. Typhoid fever is reported in 16 towns only, in the State, and except in New Haven there are not more than two cases in any one town. In all the State only 25 cases were reported. Pneumonia has been the most fatal disease, exceeding the fatality of consumption by 23 deaths. But the deaths from pneumonia for the three months ending March 31 were 241 less than in the same months of the previous year. The deaths from consumption numbered 46 less for the quarter ending March 31, 1902, than in the same quarter of 1901. There were 140 deaths from consumption reported in March. Although the new sanitary regulations, recently adopted, require the notification of all consumptive subjects to the Town Health Officer, only 22 cases were so reported, notwithstanding there were 140 deaths from the disease.

**MEETING OF THE MASSACHUSETTS EMERGENCY AND HYGIENE ASSOCIATION.**—The annual meeting of the Massachusetts Emergency and Hygiene Association was held in Boston April 21. Reports made at the meeting showed that excellent progress had been made during the year in the work to which the association is devoted. Dr. J. J. Minot, reporting for the committee on instruction for attendants, said that the demand for attendants had been brisk, frequently exceeding the supply; that more practical work among the sick poor has been given this year than usual; that the course is to be lengthened next year to

make it more thorough, and that the attendants fill a place below that of the trained nurse in skill as well as in compensation received. Dr. James J. Minot was re-elected president of the association.

**FREQUENT CAUSES OF DEATH.**—Among 134 deaths occurring in Worcester, Mass., during March, 27 were from pneumonia, 17 from heart disease, 12 from tuberculosis of the lungs, and 10 from apoplexy.

## NEW YORK.

**TREATMENT OF TUBERCULOSIS ON BLACKWELL'S ISLAND.**—The Commissioner of Public Charities has just given out a statement of the results thus far attained at the new municipal hospital for pulmonary tuberculosis, opened Feb. 1, in the buildings formerly occupied by the Manhattan State Hospital for the Insane on Blackwell's Island. The time included is, of course, very brief, and the report is probably of little real scientific value, but yet it is encouraging and of considerable interest as showing the good effects, in even a short period, and one embracing the most inolement part of the year in New York, of rest for those requiring it, a regular regimen, proper food, and plenty of fresh air. No mention is made of any special medicinal treatment, so that it is to be inferred that this was merely symptomatic. Of 273 cases admitted, 76 died, and 55 have been discharged,—50 as improved and 5 not improved. There remain in the hospital 114. With few exceptions all of the patients were in more or less advanced stages of the disease at the time of entrance. Rather more than 50% were in the last stage. The remaining cases consisted of two classes: (1) Those in whom all the typical signs of tuberculosis were present, but who yet retained a fair amount of nutrition and strength, and (2) those whose general condition was less favorable, but who were able to be up for the greater part, if not all of the day. The 50 patients discharged as improved have, as a rule, either returned to their work or been sent to the country. Twenty-eight cases have been transferred on account of surgical needs, or as showing no evidence of phthisis. Of the patients remaining, 20 new cases are not yet classified, 40 are unable to leave their beds, and 54 are less advanced cases. Of these, 25 have been decidedly improved and show an average gain in weight of 6.75 lbs.; 13 show less improvement, but an average gain of 1.9 lbs.; 16 have not improved, and show an average loss in weight of 1.31 lbs. Special reports of some of the cases are given. In one of those the patient, admitted Feb. 3, gained 16 lbs.; in another, admitted March 10, the gain was 7½ lbs.; in another, ad-

mitted Feb. 1, 8½ lbs.; in another, admitted March 24, 3½ lbs. All were much improved in other ways also. One patient, admitted on Feb. 1, poorly nourished, gained 16½ lbs., and left the hospital on April 9 in good condition. A salesman, 36 years of age, in the second stage of the disease, has gained 6 lbs. in weight, and the bacilli have entirely disappeared from his sputum.

**MORTALITY STATISTICS OF HUDSON COUNTY, N. Y.**—The annual report of the health department of Hudson County, N. Y., just issued, shows that the mortality during the year 1901 represented an annual death-rate of 18.6 per thousand, the lowest in 28 years. The death-rate in Jersey City, the principal city, was nineteen per thousand, the lowest since the records have been kept. Between March 1, 1901, and March 19, 1902, the total number of cases of smallpox was 556, with fifty-four deaths.

**COMPARATIVE DEATH AND BIRTH RATES.**—During the first quarter of the present year the death-rate in the city of New York was 20.22 per thousand of the population, as against 21.01 for the first quarter of 1901. There were 18,364 deaths and 21,767 births reported in the quarter in 1902, and 18,575 deaths and 20,981 births in 1901.

### Discellanp.

#### AN EXAMINATION PAPER ON OSLER (FOURTH EDITION).

REALIZING that there is a certain monotony about medical examinations the following paper, purporting to be from the pen of a writer in the *St. Thomas Hospital Gazette*, London, is offered by way of variety:

1. Who was Mephibosheth? What parental superstition dates from his time?
2. What is "one of the saddest chapters in the history of human deception"?
3. Give Osler's quotations from the following authors: John Bunyan, Byron, John Cheyne, George Cheyne, Montaigne. Explain the context where necessary.
4. Describe, if necessary, with the aid of diagrams, Kemp's double current rectal tubes. What are the indications for their employment?
5. Give in full the name of "the distinguished old Bath physician." At what period did he flourish, and what is his claim to distinction?
6. As a sequence, to what therapeutic procedure did the son of Professor Langerhans die? What was the pathological and medico-legal interest of the case?
7. What is the chief recorded complication of a lay committee meeting at St. George's Hospital?
8. Who was convinced that more wise men than fools are victims of gout? Is there any reason why he, in particular, should hold that view?
9. What cases drift to "museums and side-shows"?
10. How did Trousseau's patient make money?

11. What celebrated English physician preferred to die in harness? State the cause of death?

12. What internal evidence is there: (a) That Osler has had an unhappy experience with cheap bicycles; (b) that he is interested in the history of Napoleon Buonaparte?

13. What is O. Rosenbach's dictum on the custom of wearing stays?

14. Quote Hunter's famous advice to Jenner.

15. What was the counsel of Rondibilis to Panurge?

16. How did Eryximachus treat the hiccough of Aristophanes?

17. Give the references to Lady Mary Wortley Montagu, President Jefferson, Jerome Cardan, the Elder Scalliger, Captain Catlin, Laurence Sterne, Thomas King Chambers, Robert Druitt and Colonel Townshend.

18. What did Strabo call "the lisping of the gout"?

19. Give the context of the following quotations, and make explanatory remarks if necessary: (a) Cases are given after nearly every one of the specific diseases; (b) I saw, some years ago, one of the most distinguished gynecologists of Germany perform laparotomy in a case of this kind; (c) the doses given by the late Alonzo Clark of New York may be truly termed heroic; (d) in a somewhat varied post-mortem and clinical experience, no instance has fallen under my observation; (e) a history of gorging with peanuts; (f) I have seen Murchison himself in doubt; (g) a toad-like caricature of humanity; (h) from the accurate view of Laennec and Louis the profession was led away by Graves, and particularly by Niemeyer; (i) one of the most powerful enemies of the American stomach at the present day; (k) I had a lesson in this matter which I have never forgotten.

20. Who was Van Helmont, and when did he live? Give a brief account of his opinion on contemporary medicine.

21. Who made an autopsy on Dean Swift, and what did he report?

22. What interest attaches to: (a) The Pullman car conductor from Chicago; (b) the Appleton-Swain family; (c) yellow cakes at Philadelphia; (d) Chancellor Ferrier; (e) Master McGrath; (f) Renforth the Oarsman; (g) Shattock's patient.

23. Who had a translucent head? What was the pathology of the condition?

24. On what occasion was a surgeon entrapped by a neurotic physician?


### Obituary.

#### MEREDITH CLYMER, M.D.

DR. MEREDITH CLYMER of New York, for many years an authority on diseases of the nervous system, died on April 20 in the eighty-sixth year of his age. He was a native of Philadelphia, and a grandson of George C. Meredith, one of the signers of the Declaration of Independence. He was graduated from the University of Pennsylvania in 1835 and from the medical department of the university in 1837, after which he pursued his medical studies in London, Dublin and Paris. He practised his profession in Philadelphia for ten years, during which time he was consulting physician to the Philadelphia Hospital, physician-in-chief to the Cholera Hospital in that city, and professor of the practice of medicine in the Hampden-Sidney College at Richmond, Va. He came to New York in 1851, and became professor of practice in the Medical Department of the University of the City of New York. During the Civil War he was a surgeon in the United States Volunteers, and medical director of the Department of the South. In 1871 he was appointed professor of mental and nervous diseases in Albany Medical College. Dr. Clymer was a highly esteemed medical author, and in addition to writing several works and editing a number of others, was for many years a constant contributor to periodical medical literature.

## METEOROLOGICAL RECORD

For the week ending April 12, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r		Rainfall in inches.	
	Daily mean.	Daily max.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S....6	29.97	43	51	35	76	75	76	W	S	7	8	F.	C.	O.
M....7	30.10	42	45	40	87	88	88	S E	E	7	14	R.	O.	T.
T....8	30.00	40	42	39	90	100	95	N E	N E	22	30	R.	O.	R.
W....9	29.61	42	45	40	100	100	100	E	N E	12	12	R.	O.	O.
T....10	29.68	40	41	38	96	87	92	W	N	14	10	R.	O.	T.
F....11	29.78	44	50	38	88	68	78	W	N W	9	7	R.	O.	T.
S....12	29.68	52	60	43	73	65	69	S W	N E	11	4	C.	O.	T.
	29.83	48	39				85							1.75

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 12, 1902.

CITIES.	Population* Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					Cerebro spinal meningitis.
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.		
New York.	3,665,362	1,393	460	24.33	14.28	2.51	.72		.38
Chicago.	1,852,828	562	163	23.05	19.03	2.49	1.14		
Philadelphia.	1,349,624	506	123	19.09	13.58	2.55	2.75		
St. Louis.	603,717	—	—	—	—	—	—		
Baltimore.	625,330	182	34	21.96	11.58	.54	1.64		
Cleveland.	411,826	—	—	—	—	—	—		
Buffalo.	375,742	—	—	—	—	—	—		
Pittsburg.	241,401	155	46	26.44	23.86	.64	13.05		
Cincinnati.	332,032	—	—	—	—	—	—		
Milwaukee.	304,975	—	—	—	—	—	—		
Washington.	289,587	—	—	—	—	—	—		
Providence.	185,870	70	19	18.00	12.86	5.84	—		
Boston.	588,730	199	58	15.07	19.09	1.50	.50		1.00
Worcester.	127,337	27	3	11.10	18.51	—	—		3.70
Fall River.	111,872	40	16	35.00	17.50	5.00	—		—
Lowell.	96,574	36	11	22.12	8.33	5.55	—		—
Cambridge.	96,334	27	10	22.22	18.51	3.70	—		—
Lynn.	71,144	22	9	31.71	18.18	—	—		9.09
Lawrence.	67,275	23	14	26.08	34.78	—	4.34		—
Springfield.	66,854	14	—	7.14	28.56	—	—		—
Somerville.	65,882	24	2	33.33	12.50	4.16	—		8.33
New Bedford.	65,574	26	9	15.40	17.35	—	—		3.85
Holyoke.	48,065	11	4	18.18	27.27	—	—		—
Brookton.	43,298	7	3	87.20	—	14.30	—		14.30
Haverhill.	40,392	7	2	14.30	28.60	—	—		—
Salem.	36,567	13	1	38.50	7.70	—	7.70		—
Newton.	36,336	10	3	10.00	20.00	—	—		—
Malden.	35,390	8	2	—	—	—	—		—
Chelsea.	35,264	10	6	10.00	—	—	—		—
Fitchburg.	33,845	14	6	14.28	14.28	—	—		—
Taunton.	32,750	17	3	17.64	17.64	—	—		—
Everett.	27,114	6	1	—	—	—	—		—
North Adams.	26,583	3	—	16.67	33.33	—	—		—
Gloucester.	26,121	6	—	—	—	—	—		—
Quincy.	25,307	7	2	87.20	—	—	—		—
Waltham.	24,612	13	1	15.40	15.40	—	—		—
Pittsfield.	22,311	5	—	—	40.00	—	—		—
Brookline.	21,679	7	1	23.60	28.60	—	—		—
Chicopee.	20,300	6	4	—	33.33	—	—		—
Medford.	20,014	6	1	16.67	16.67	—	—		—
Newburyport.	14,478	8	2	—	25.00	—	—		—
Melrose.	13,384	2	—	—	—	—	—		—

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,507; under five years of age, 1,030; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 781, acute lung diseases 555, consumption 400, scarlet fever 52, erysipelas 15, typhoid fever 46, whooping cough 26, cerebrospinal meningitis 15, smallpox 22, measles 37, diarrheal diseases 72, diphtheria and croup 78.

From whooping cough, New York 15, Chicago 6, Philadelphia 2, Baltimore 1, Pittsburg 1, Boston 1. From cerebrospinal meningitis, New York 4, Boston, Lynn and Somerville 2 each, Worcester, Cambridge, New Bedford, Brockton and Gardner 1 each. From scarlet fever, New York 29, Chicago 15, Philadelphia 2, Pittsburg 1, Fall River 2, Boston, Fitchburg and Westfield 1 each. From erysipelas, New York 7, Chicago 2, Baltimore 2, Pittsburg 1, Boston 3. From smallpox, New York 12, Philadelphia 4, Boston 3, Lawrence 1, Quincy 2.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending March 29, the death-rate was 18.2. Deaths reported 5,175; acute diseases of the respiratory organs (London) 360, whooping cough 157, diphtheria 93, measles 145, smallpox 68, scarlet fever 52.

The death-rate ranged from 6.2 in Hornsey to 34.0 in Merthyr Tydfil; London 18.4, West Ham 16.9, Croydon 18.1, Brighton 20.1, Portsmouth 14.4, Southampton 18.4, Bristol 17.5, Birmingham 20.1, Leicester 19.3, Nottingham 19.5, Birkenhead 20.4, Liverpool 20.3, Manchester 21.3, Salford 19.1, Bradford 15.9, Leeds 18.3, Sheffield 17.8, Hull 18.4, Newcastle-on-Tyne 20.2, Cardiff 16.1.

## SOCIETY NOTICES.

CENSORS' MEETING.—The Censors of the Suffolk District Medical Society will meet for the examination of candidates at the Medical Library, No. 8 The Fenway, on Thursday, May 8, at 2 o'clock.

Candidates should make personal application to the secretary and present their medical diplomas at least three days before the examination.

F. J. COTTON, Secretary.

THE AMERICAN CONGRESS OF TUBERCULOSIS.—The third annual session of this congress is announced to be held on the 14th, 15th and 16th of May, 1902, at the Hotel Majestic, 72d Street and Central Park, West, in the city of New York, in joint session with the Medico-Legal Society.

AMERICAN CLIMATOLOGICAL ASSOCIATION.—The American Climatological Association, instead of its usual annual meeting, has arranged a tour of the West from May 26 to July 3, in the course of which the scientific sessions will be held.

MEDICAL ASSOCIATION OF MISSOURI.—The forty-fifth annual session will be held at St. Joseph, Mo., May 20, 21 and 22, 1902.

## LECTURE.

LECTURE ON TUBERCULOSIS.—Dr. Edward O. Otis will lecture on "Sanatoria and the Open-Air Treatment of Tuberculosis" at the Tufts College Medical School, corner Huntington and Rogers Avenues, on Wednesday evening, April 30, at 8 p.m. Members of the profession are invited to attend.

## RECENT DEATHS.

DR. NATHANIEL MARSTON FREEMAN of New York, a graduate of the Yale Medical School in 1852, died suddenly from cardiac disease on April 18, at the age of eighty-one. Although enjoying good health, he had retired from active practice several years ago.

DR. JULIUS WISE died at Chicago April 19, in his fiftieth year. Dr. Wise was a physician of high repute, and especially for his work in the yellow fever epidemic in 1878-1879, when he was professor in the Memphis (Tenn.) Medical College. He was also a contributor of note to the Jewish press.

DR. R. R. RICKER, one of the oldest physicians in Lewiston, Me., died recently. He had been a resident of Lewiston nearly forty years. He studied at Dartmouth, and graduated finally from Bowdoin. Dr. Ricker entered the army as assistant surgeon in the Twenty-Third Maine Regiment in 1862, and later enlisted for a similar position in the Thirty-First Maine, serving with this regiment through all the closing battles of the war.

## Original Articles.

PROBLEMS RELATING TO SURGERY OF THE STOMACH.<sup>1</sup>

BY WILLIAM J. MAYO, A.M., M.D., ROCHESTER, MINN.,  
Surgeon to St. Mary's Hospital.

IN the preparation of the subject to be discussed, I have thought it wise to confine myself to the practical aspects of gastric surgery, using for this purpose the material obtained from a single hospital, which, by reason of the fixed character of the agricultural community in which it is situated, gives fairly accurate data upon which some general observations can be based. This method of treating the questions brought forward is not due to a lack of appreciation of the grand work of the pioneers in this branch of our art, a work in which the surgeons of Boston have played so conspicuous a part, but rather with the hope that the limited experience of an observer in a somewhat distant field might be of the greater interest.

Gastric surgery is, to a large extent, still in the developmental stage, and this is due to the lack of definite knowledge upon which to base a surgical diagnosis. Volumes have been written upon the diseases of the stomach from a medical standpoint, but as the statements made are based upon the symptoms of the patient or the results of post-mortem examinations, we gain but little as to that great middle ground in which the surgery of expediency will find its field of usefulness. The debatable territory is now being explored, and we shall shortly have a more exact knowledge. At the present time our own experience would seem to indicate that in the medical diagnosis there were four important lines of inquiry to be pursued: (1) The history of the patient; (2) the size and position of the stomach; (3) tumor or localizing point of tenderness; (4) interference with the progress of the food. The examination of the stomach contents has some corroboratory value, especially with reference to the stagnation or retention of ingesta. The chemical and microscopical findings are unreliable in the early phases of disease, but possess some significance later in its course. Examination of the blood, the urine, the feces, etc., is of interest and occasionally helpful. The use of the gastroscope, gastroduodenoscopy, x-ray, etc., is still experimental.

The mechanics of the stomach is the most interesting feature to the surgeon; from this point of view the function of the stomach is largely mechanical. It absorbs fluids, equalizes the temperature of the ingesta, and the weak solution of hydrochloric acid and pepsin which is secreted breaks up the food masses, forming a homogeneous material which is fed down into the small bowel, where the real work of digestion and absorption takes place. It may be said to act like the magazine of a furnace, the accumulation in the reser-

voir self-feeding through the pylorus. The more experience one acquires with the operative side of the question, the more one is impressed with the correctness of this view.

Any interference with the outlet promptly produces symptoms corresponding with the degree of obstruction, while ulceration or other disease involving the wall of the stomach, preventing it from acting as a reservoir, is also quickly resented. The distress in each case causes the patient to unconsciously try to adjust the quality of food and its quantity, to the loss of this peculiar function of the stomach. The result of obstruction at the pylorus is to increase the capacity of the stomach, and this is often the only objective sign to which our attention is called before operation. Dilatation is to be expected in the first group, of which pyloric stenosis is the type, but unless the disease of the wall is sufficiently near the pylorus to add mechanical features, it is not present in the second group, of which ulcer is the chief example.

Dilatation, due to benign obstruction at the pylorus, is followed by increase in the muscular wall of the stomach, the hypertrophy enabling the damaged organ to carry on its function. This degree of compensation is often aided by the patient through a selected diet. In these cases compensation, alternating with dilatation and its discomforts, gives a clinical picture which may be aptly compared to cardiac insufficiency.

Why is it that these patients, with far greater symptoms than would be tolerated in either the appendiceal or gall bladder regions, are allowed to go unrelieved? It is not only that we are unable to know before operation the exact nature of the trouble, but that we also distrust our ability to make a diagnosis even at the operating table.

In the beginning, every operation upon the stomach partakes of an exploratory incision, and too often the proposed operation stops, upon exposure of an extent of disease beyond intervention. This is particularly true of cancer. The surgical examination of the stomach may not prove easy. The pylorus and anterior wall are open to inspection, and gross lesions of all parts can be ascertained, but not so the more minute forms of disease, such as the round ulcer. Our plan has been to explore by sight and touch, the more accessible portions of the stomach wall. Then, by opening into the lesser cavity of the peritoneum through the gastrocolic omentum, to pass the hand behind the stomach and search its posterior wall (Tiffany). To explore the interior of the gastric cavity, a transverse incision is made three inches in length through the anterior wall half way between the pylorus and cardiac orifice. Into this a short rectal speculum, two inches in length and one and one-half inches in diameter, is inserted and the fluids removed by suction. With the hand behind the stomach, nearly the whole of its mucous surface can be passed in review before the end of the speculum under direct light. (This is a modification of the method first brought out by Maylard at the International Congress, 1900.)

<sup>1</sup> Read before the Surgical Section of the Suffolk District Medical Society, Feb. 28, 1902.

With a considerable lesion one may often doubt whether the trouble is cancer or ulcer; or, not infrequently, the seat of an ulcer has undergone carcinomatous degeneration, leading to uncertainty. This is especially true of the pyloric region. We have had two cases in which the thickening about a pyloric ulcer was so great that even after incision, with the parts open to inspection, we were

of dilatation of the stomach are due to the healing of a gastric ulcer causing stenosis, or to malignant disease involving the pylorus. The only cases of cancer of the stomach we have been able to diagnose sufficiently early to extirpate were the cases in which obstruction and dilatation were present. Upon opening the abdomen this factor is easily seen and needs no comment.

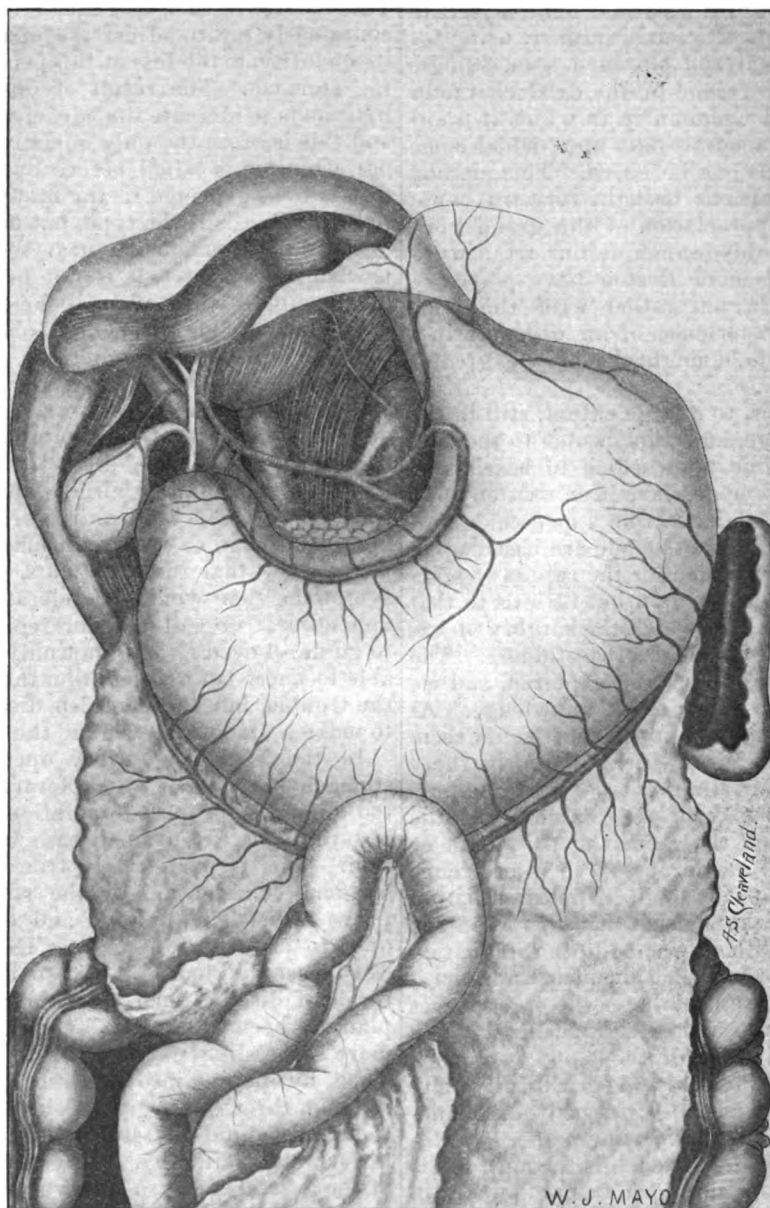


FIG. 1. Traction weight of small bowel producing funnel shape of stomach at site of anastomosis.

unable to tell the difference, macroscopically. Enlarged lymphatic glands, unless distinctly cancerous, do not help us. It has been our experience, that in the majority of diseases of the stomach marked by retention and fermentation of the food, enlarged lymphatic glands are to be found in the omenta. The most common forms

There is a large group, however, of chronic cases of dilatation of the stomach giving rise to symptoms which, upon careful surgical exploration, show no adequate cause for the condition. In other cases, hypersecretion or hyperchlorhydria is the case of chronic gastric distress in which operative relief is indicated. We may say

that pyloric spasm exists, due to a microscopic ulcer. It is a convenient term, not capable of either proof or refutation. In this connection I have examined over one hundred stomachs in the course of other operations, with especial reference to the pylorus, to try and establish a surgical normal. Under anesthesia, if the normal pyloric opening be compressed between the thumb

spasm, little difference could be detected. In only four cases could a definite thickening be demonstrated in the pyloric ring. In these patients the slight abnormality was situated posteriorly, but in one only did incision reveal an ulcer. It was also noted that in these four cases there was very little if any dilatation of the stomach.

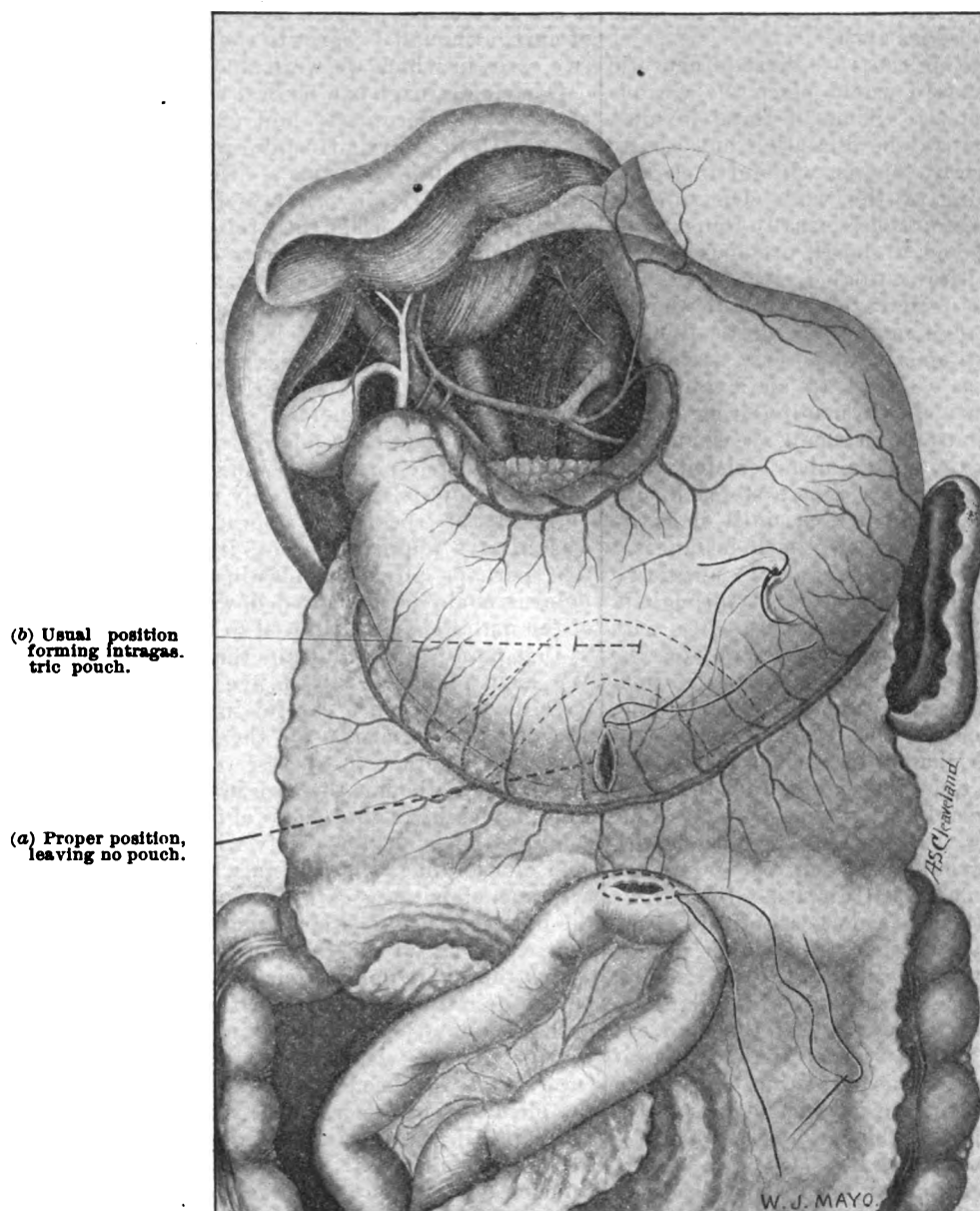


FIG. 2. Showing proper and improper locations of opening.

and finger, invaginated into the stomach and duodenal walls, on either side, the lumen will permit of easy meeting of the opposing digits, and gives the feeling that an opening exists about the size of an old-fashioned silver three-cent piece. Comparing this with the cases which I had previously diagnosticated as having pyloric

In a number of other cases angulation was present, that is, a high-lying pylorus somewhat firmly fixed, with a sharp bend of the stomach downward immediately proximal to it. In 1896 I described five cases of this condition as a cause of dilatation of the stomach, under the title of "Valve Formation." I have seen a number of



cases since. Adhesions outside the lumen of the stomach, the result of a perigastritis from gastric ulcer or a cholecystitis, may be the cause. (Robson, Cabot and others have described a number of such instances.) We have met with this condition most frequently in connection with work on the biliary tract. In some cases, however, when no apparent cause for the dilatation exists, the stomach wall is hypertrophied, and for this reason we must conclude that in some manner obstruction does exist.

The most perplexing cases are those of neurotic origin, in which class I would place the various grades of gastroparesis. Some of these invalids have also an accompanying dilatation, but usually of the atonic variety, that is, without increased muscular thickening of the wall. On surgical exploration such a stomach is usually found to be empty and contracted, although previous examination has shown it to be dilated.

In the purely neurotic variety, while there may be little or no change in the size or position of the stomach, symptoms of ulcer may be so perfectly simulated as to lead to an exploration which proves negative. On manipulating such a stomach it may contract in small areas, and for a moment look as though an ulcer existed, to as suddenly disappear, or the whole stomach may undergo vermicular contraction, until it is no larger than the colon. In two such instances I have seen the pylorus suddenly dilate until two or more fingers could be invaginated through it. These cases must be classified surgically with movable kidney, movable retroversion of the uterus, varicocele, etc., usually occurring in neurasthenic individuals, and occasionally demanding an operation which may be followed by benefit. I have examined a number of such stomachs, and we have operated upon a few, in which dilatation coexisted or a mistake in diagnosis was made. One has a feeling that we should reject, surgically, this whole group, yet even a neurasthenic is not exempt from actual disease, although we naturally subject them to a most careful and painstaking preliminary examination in which subjective symptoms are accorded but little weight. Speaking from an operative standpoint, dilatation with retardation of the passage of the food out of the stomach is the most important surgical indication. When does this condition demand an operation? It is largely a personal equation between the experience of the surgeon and the disability of the patient.

The value of gastric drainage in these cases is apparent and needs no argument. The desirability of drainage of the non-dilated stomach is based largely upon clinical observation. Theoretically, it would not strike one that a well-drained or contracted stomach, even if ulcer be present, would be benefited by such a procedure. It is claimed that gastric drainage, especially gastro-enterostomy, rests the stomach, permits of escape of secretions, and increases the nutrition, thereby aiding recovery. Our own experience, while very limited, in a general way seems

to bear out this conclusion, but not wholly so. If we divide our cases of ulcer into two groups, in the first place all the cases in which ulcer existed in the pyloric end of the stomach, and in which the capacity of the stomach was increased from any cause, and in the second group place all the cases in which the contrary existed, we find the results much less favorable in the latter. In cases of ulcer in the small stomach, excision, if it can be located, offers a more satisfactory means of cure, although I regret to say we have had but two cases in which we were able to do this.

Gastric drainage can be best established in two ways: (1) Pyloroplasty, and (2) gastro-enterostomy. In St. Mary's Hospital pyloroplasty, after Heineke-Mikulicz, was made fifteen times by my brother, Dr. C. H. Mayo, or myself; in four of these cases, failure to permanently relieve the symptoms necessitated a secondary gastro-enterostomy. In the four cases the stomach was greatly dilated, and, by a more rapid stretching of its greater curvature, also pouched. The plastic operation on the pylorus in each instance was found to have been successful so far as enlarging its calibre was concerned, but the degenerated muscle fibre of the stomach wall had been unable to elevate the food from the gastric pouch to the high-lying pylorus, and the symptoms were largely unabated.

As at the secondary operation the pylorus was always found adherent, it occurred to me that perhaps after the plastic operation, if the pylorus could be anchored down in the vicinity of the umbilicus and allowed to become adherent at that point, it would drain the stomach better. We have practised this in five cases, but as we have also been more careful in the selection of non-pouched stomachs for the operation, I am uncertain whether the better results have been due to the method or the care in selection. There were no deaths in this group of cases and no later complications. Pyloroplasty will have a limited field of usefulness in cases in which dilatation of the stomach is not great. If it can be shown that the pyloric spasm is a large factor in the clinical course of gastric ulcer, pyloroplasty, which destroys the sphincter action of the muscle, might be the operation of choice in the group of cases without dilatation, or in which the stomach is contracted, as it is in these cases that gastro-enterostomy has been the least beneficial and late complications have occasionally arisen.

All in all, we have found gastro-enterostomy to be the most satisfactory operation on the stomach. This operation was performed eighty times, with eight deaths. For cancer, twenty-one gastro-enterostomies with four deaths, the greatest length of life was nineteen months, with ability to carry on manual labor for more than sixteen months. I regret to say, however, that with few exceptions the palliation has been of such short duration as to hardly justify the operation. The hope of the future for cancer of the stomach is early exploration and extirpation.

For benign conditions, gastro-enterostomy has the great advantage, in that it drains the stomach

from the lowest point, relieving the retention of obstruction equally with the painful contact which the food causes in gastric ulcer. Twelve cases of chronic intractable ulceration in the vicinity of the pylorus, in which some narrowing of the orifice was produced and dilatation was present, were benefited, the cure in the eleven that recovered from the operation being fairly good. In

was found to be due to a contraction which followed at the anastomotic opening. This subsequent narrowing is of no consequence so far as the stomach is concerned, but as one-third the lumen of the small bowel is involved, the reduction may be a serious matter, causing, later, an angulation. The attempt at obliteration comes on after the stomach has resumed its function,

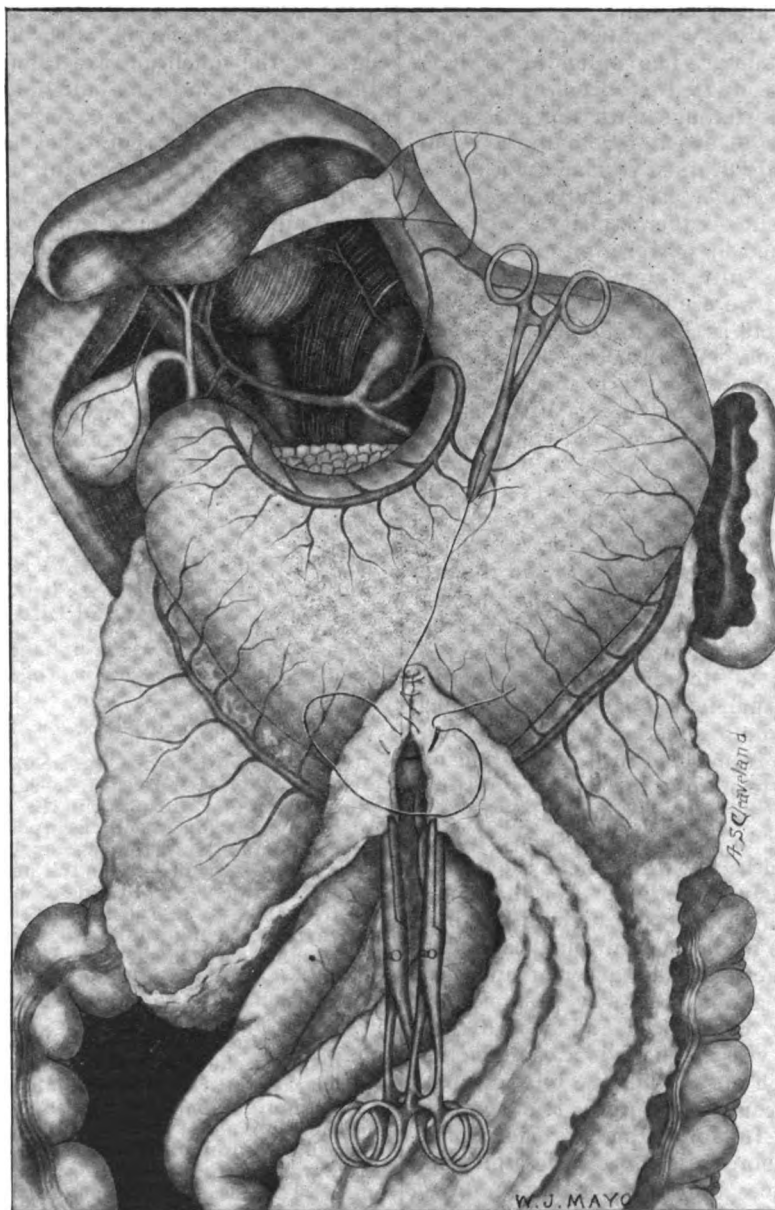


FIG. 3. Forming an apron of the omentum, attaching to the stomach above the anastomosis.

six cases of ulcer in which the pylorus was of normal size and the stomach contracted, relief was less certain and slow to come about. In three cases of ulcer, subjected to gastro-enterostomy, a secondary operation became necessary for angulation at the site of the anastomosis. This took place after some weeks or months, and

and takes place only in the cases in which the pylorus was unobstructed, nature making the usual endeavor to close an unnecessary fistula.

The symptoms of this complication are attacks of burning pain in the stomach, with nausea, and perhaps a little bile-stained fluid may be regurgitated or can at times be washed out of the

stomach, but there is usually no stagnation nor vomiting of food. Entero-anastomosis relieves the condition. It would seem wise to make an entero-anastomosis at the primary operation whenever gastro-enterostomy is performed in a case in which the pylorus is unobstructed. In no case of permanently obstructed pylorus has contraction of the anastomotic opening followed in our cases, so far as we know. We have never seen the opening completely closed.

At the present time we are asking too much of gastro-enterostomy. The splendid drainage established in the dilated stomach, which presupposes some interference with the passage of the food, leads us to use it for temporary purposes, in a normally drained stomach, with much less satisfactory results. Even in these cases it cures many and relieves the majority.

As to the method of performing gastro-enterostomy, there are still a few questions to be settled: (1) Shall we use the suture or the Murphy button? So far as I can judge, the results are about the same. We use the button. (2) Shall it be on the anterior or posterior wall of the stomach? Here again there is little choice. We have made sixty-nine anterior and eleven posterior with equally good results. Theoretically, the posterior operation would seem the better, as one can secure the jejunum at a higher point. We have made the posterior within six inches of the origin of the jejunum, and it takes fourteen inches to form a loop for the anterior method. The making of the posterior operation so close is not a safe procedure, as, if it should become necessary to do an entero-anastomosis later, there is not sufficient room on the proximal side of the anastomotic opening for this purpose. We lost one case from this cause. In either operation, from fourteen to sixteen inches of intestine should be left on the proximal side.

The main thing in gastro-enterostomy is that the opening should be low down, near the greater curvature, in either operation. We have had little trouble with primary pernicious vomiting ("vicious circle") for more than four years, since we began this practice. The anterior operation is usually made about half way between the lesser and greater curvatures and where there are but few blood vessels. This is a bad practice, as it leaves a pouch into which the bile and pancreatic secretions can easily enter. It encourages "vicious circle." In doing the posterior operation the inferior border is more accessible, and one naturally places the opening lower down. The anastomosis should be effected in such manner that its inferior edge shall be at the bottom of the stomach pouch, on a line with the greater curvature in either the anterior or posterior operation (Fig. 2).

In two of our cases of gastro-enterostomy, the bowel detached spontaneously from the stomach, once on the seventh and once on the tenth day, with resultant leakage and death, contrary to Chlumski's experiments, in which it was shown that union was firm after the fifth day. It was

noted at the autopsy that it was the superior edge of the union only that detached; the lower edge, being just at the origin of the gastrocolic omentum, was so protected as to be of unusual strength. We now, after making the anterior inferior anastomosis, grasp the omentum upon either side and pull it upward in such a manner as will not tract upon the transverse colon. The two upper free ends are fastened together and then to the stomach wall, not less than one inch above the anastomosis, with fine catgut. The edges of the omentum are then united to each other for two and one-half inches, forming an apron which completely covers the site of union, protecting the weak point, yet having no connection with it (Fig. 3). Should the omentum drag in the future, the strain would come above the opening upon the stomach and increase that funnel shape (Fig. 1) which the stomach should assume after the operation is properly completed. In the posterior inferior operation a few sutures attaching the margins of the torn mesentery of the transverse colon to the stomach will furnish the same protection to the union. Gastro-enterostomy for late cancer of the pylorus will be followed by bad results without regard to method, and if ascites be present, union will probably not take place.

#### THROMBOSIS OF THE CAVERNOUS SINUS; WITH REPORT OF FOUR CASES, INCLUDING ONE CRANIAL OPERATION.<sup>1</sup>

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AND

HARRY H. GERMAIN, M.D., BOSTON.

**CASE I.** *Cellulitis of face, thrombosis of cavernous sinus, operation, death.*—On Dec. 31, 1899, there was admitted to the Boston City Hospital, to the service of Dr. F. S. Watson, a man, 40 years old, a carpenter. His previous history and family history were negative. About two weeks before his entrance to the hospital he noticed a small abscess on the right side of his face, about one inch from the nose and just above the upper lip. This was treated with hot applications, but the swelling increased, and it was opened by incision through the lip. The bowels were constipated, and he had had fever and headache for two days. Temperature on admission, 103.5°.

**Physical Examination.**—On admission it was noted that his right cheek was swollen and hot to the touch, most marked near the nasolabial fold. In the centre of this indurated mass there was a small opening (surgical incision) about one-fourth of an inch in length, from which a drop of pus exuded. Just to the right of this was a second induration about the size of a half-dollar. The lids of both eyes were swollen, with exophthalmos and chemosis, most marked on the right. On the cornea of the right eye there was a small, superficial ulceration. The right eye was immobile, the left had slight motion in all directions, pupils dilated and neither re-acted to light nor accommodation. The fundus showed blurring of the edge of the disc on the right and a dilation of the veins on the left. The vision of the right eye was probably entirely absent; with the left the fingers could be seen at two feet.

Jan. 1: Temperature, A.M., 101.6°; pulse, 100. Temperature, P.M., 103.5°; pulse, 105; somewhat delirious and evidently in pain. Jan. 2: Temperature, A.M.,

<sup>1</sup> Read before the Surgical Section of the Suffolk District Medical Society, Feb. 26, 1902.

102.8°; pulse, 112. Temperature, P.M., 103.4°; pulse, 135; unconscious; moaning. Exophthalmos, chemosis and edema about the eyes much increased. Jan. 3: Condition growing steadily worse. Some stiffness of the muscles of the neck. Exophthalmos and chemosis still more marked, with great protrusion between the lids. Feces and urine passed involuntarily. Unconscious, restless and moaning. In the absence of Dr. Watson he was seen by Dr. Dwight, and Dr. Edwin Jack was asked to see him in consultation. Dr. Jack confirmed the diagnosis of thrombosis of the cavernous sinus which had been made by Dr. Germain when the patient was admitted to the hospital, and confirmed the opinion that a fatal result was almost sure. Members of the family were seen, an entirely bad prognosis was given, it being suggested that the only possibility of recovery depended upon the thorough drainage of the cavernous sinus, that this operation had never been done, but, that, in the opinion of the surgeons, it offered the only possible hope of relief. Permission for the operation was granted. Just preceding the operation the temperature was 103°, pulse 140 and irregular both in volume and rate.

**Operation by Dr. Dwight.**—Patient was lightly etherized, head shaved, and a horseshoe flap with its apex upward, including the temporal muscle, was turned down, the anterior edge of the flap being two and one-half inches back of the outer canthus. The flap was carried as low down as possible without removal of the zygoma, this route being practically the one recommended by Krause in his operation for intra-cranial resection of the trigeminus. The temporal bone was trephined as low as possible and the opening enlarged with a rongeur. The dura opened, the tip of the temporal lobe was lifted backward and upward until the cavernous sinus was felt with the tip of the index finger of the left hand; a narrow bistury with protected edges was carried in along the finger and the cavernous sinus opened with an incision about one-half an inch in length. This incision was followed by a rush of dark semiclotting blood. The knife was withdrawn and a narrow strip of gauze was introduced along the finger which had been kept in place; the finger was then withdrawn, the gauze, which had been left, entirely controlling the hemorrhage. The dura was brought together, the edges of the skin approximated by interrupted silk sutures, the strip of gauze which had been introduced being carried through the flap. The head was dressed with a large aseptic dressing. The operation itself, from the first incision to the beginning of the dressing, consumed but eight minutes.

At the end of the operation the patient's condition was decidedly better than at its beginning, the pulse having dropped 20 beats, and a diminution in the edema and exophthalmos being apparent immediately. At the end of half an hour the exophthalmos had almost entirely disappeared, as had, to a great extent, the chemosis and edema of the lids. The temperature had fallen to 101°, the pulse remained at 120, and the patient was much more quiet. His condition continued about the same for four hours, when he began to fail, and died six and a half hours after the operation.

The pathologist reported that the microscopical examination showed the presence of forms closely resembling actinomyces; the culture, however, produced nothing but staphylococcus albus.

**CASE II. Carbuncle of neck, thrombosis of lateral, petrosal and both cavernous sinuses; death.**—Middle-aged man, farmer, service of Dr. Burrell. Transferred to the Boston City Hospital Dec. 18, 1897, from the Eye and Ear Infirmary, having been in that institution for twenty-four hours. History obtained from physician states that the patient has been under treatment during the past ten days for carbuncle of the neck, was apparently doing well until Dec. 15, when double exophthalmos appeared and patient became delirious.

**Physical examination.**—Temperature, 102°; pulse, 140; respiration, 30; delirious. Incontinence of urine and feces. Large sloughing carbuncle on back of neck. Eyes: Pupils dilated and do not react to light; apparently blurred. Corneæ hazy and anesthetic with

some superficial ulceration. Examination of fundus impossible. Ears: Negative. Lungs: Numerous râles throughout both lungs. Respiration superficial. Abdomen: Negative. Condition remained unchanged, and patient succumbed Dec. 20 without regaining consciousness. No convulsion or paralysis noted at any time.

**Autopsy.**—Left lateral sinus showed softened thrombus, as did petrosal and both cavernous sinuses. All small sinuses around pituitary body were enlarged and filled with pus. Pressure on the eyeball causes pus to be forced out of orbit, apparently along the track of ophthalmic veins. Abscess of both lungs; septicemia; infection with staphylococcus aureus.

**CASE III. Purulent otitis media, mastoid abscess, thrombosis of lateral and cavernous sinuses, pyemia, death.**—Laborer, entered Eye and Ear Infirmary March 22, 1899, service of Dr. Morse.

**Past history.**—Intermittent discharge from ear for two months, but no pain.

**Present illness.**—Began March 22 with acute pain in ear and profuse purulent discharge. General condition poor. Temperature, 101.8°; pulse, 110, weak. On March 27 had a chill, and another March 29. March 30: Mastoid operation by Dr. Morse. Pus and granulations removed from mastoid, and antrum thoroughly curetted. Culture shows streptococci. Wound closed for first intention.

April 2: Had severe chill, wound septic, all sutures removed. April 5: Apparently septic. Chills and irregular temperature. On following day developed tenderness along jugular vein. Vomiting. April 10: No improvement. Tenderness and induration increasing over jugular. Investigation of lateral sinus was determined on. Mastoid cleaned out, lateral sinus opened and considerable pus evacuated. External and internal jugular veins exposed and ligated. Operation difficult on account of brawny edema of neck. Vomiting. April 13: No improvement. Large abscess over hip evacuated. April 20: Chill continues with remittent temperature. Anorexia. Today developed consolidation of left lung with edema of right. Parotid gland swollen and tender. April 22: Exophthalmos of left eye; chemosis; diplopia; some headache. Optic neuritis either eye, more marked in right eye. Motion of right eye defective in all directions. Diagnosis thrombosis of the cavernous sinus. April 23: Exophthalmos of left eye; with chemosis. Pupil of right eye dilated. Operation on cavernous sinus considered, but abandoned after consultation on account of condition of lungs. April 27: Pericarditis, delirium, death. Duration of illness thirty-six days. No autopsy.

**CASE IV. Septic infection of frontal sinus, thrombosis of both cavernous sinuses; pyemia and death.**—Woman, 26 years of age, married, housework. Service of Dr. Standish.

**Family history.**—Not obtained.

**Past history.**—Not obtained.

**Present illness.**—Entered Eye and Ear Infirmary June 11, 1901. Sick five weeks up to and including June 5. Had considerable discharge from right nostril. On June 6 discharge stopped and began to have pain referred to orbit above right globe. Increasing pain for four days, when she felt something "snap" in orbit and pain diminished. Immediately right eyelid began to swell. Chill on June 10.

**Physical examination.**—General condition poor. Temperature, 104°. Heart enlarged with evidence of mitral disease. Slight bronchitis. No tenderness over frontal sinus, except at exit of supra-orbital nerve. Upper lid and tissue about outer canthus much swollen and somewhat reddened. No fluctuation. Eye looks normal. June 12: Shadow shown by transillumination at inner part of brow (region of frontal sinus). Swelling, redness and tenderness increasing. Some limitation of motion of eye. Vertical diplopia. Probe passed into frontal sinus from nose and pus evacuated. June 13: Chill, retention, slight exophthalmos. Swelling extending to opposite side and to angle of jaw below. Temperature, 104.8°; pulse, 140. June 14: Frontal sinus opened, pus evacuated and sinus drained. June 16:

Exophthalmos increasing, falling pulse, delirium, death.

*Autopsy.*—Infection of frontal sinus with extension of inflammation into orbit and ethmoidal cells on right side. Septic thrombosis of both cavernous sinuses and circular sinus. Broncho-pneumonia. Ventral and tricuspid insufficiency with enlargement of heart, especially left ventricle. No meningitis. Other sinuses not affected. Culture: streptococci and a bacillus.

The subject of sinus thrombosis is one of very considerable interest, especially that form which is due to infection. When unoperated these cases are, as a rule, fatal, though recovery has followed a number where the diagnosis of thrombosis has been made. Operations upon the lateral sinus for infective thrombosis have frequently been made during the past few years by aural surgeons, and the results of these operations have been very satisfactory. Up to the present time the diagnosis of thrombosis of the cavernous sinus has been made very rarely. The literature on the subject, so far as we have been able to discover, includes 178 cases aside from those herein reported, and of these 182 cases but 14 recovered.

It has apparently been taken for granted by those who have reported cases or in other ways discussed these conditions, that on account of its anatomical position the cavernous sinus was not available for surgical interference, and with the few exceptions, which will be noted, all authors have agreed that the only justifiable operation was that of drainage through the orbit, which may or may not be associated with excision of the eyeball. Most authors agree with Gaillard in saying that "the treatment is entirely preventive." In those cases in which the cavernous sinus has been involved by extension from the ear through the lateral sinus, an attempt has been made to drain all the basal sinuses by opening and curetting the lateral. This operation has been followed by recovery in three of the cases reported. Cohen-Tervaert reports one case of extension through the ear, in which the middle cerebral fossa was opened and "several punctures were made, especially in the direction of the cavernous sinus," without result. Briger says that "this condition has not been successfully treated by the Krause method for intracranial resection of the trigeminus." Hessler recommends that the cavernous sinus be operated by the Krause method. Robineau describes a method of operation on the cavernous sinus by doing a temporary resection of the malar and trephining the sphenoid. He says: "This has never been tried as yet upon a living person."

In February, 1900, about one month after the operation reported in this paper, Hartley removed a thrombus from this sinus by essentially the same method as that employed in Case I, and a microscopical examination of that thrombus showed it to be a soft, round-celled sarcoma. This patient survived until May of the same year.

The prevalent feeling against operation in these cases apparently depends upon three facts: the supposed inaccessibility of this sinus, the extreme degree of toxemia which is present in most of

these cases when the question of operation arises, and upon the common opinion that thrombosis of a single sinus, or thrombosis limited to the cavernous sinuses, must be rare. In forming an opinion on this latter point, based upon the reported cases, there is great difficulty, on account of the fact that the vast majority of these cases are not reported in detail, and conclusions drawn from them may be, for that reason, faulty. We believe that it has been demonstrated by the operation of Hartley and the one reported in this paper, that the cavernous sinus is not inaccessible; that it may be reached by means of the route described without grave danger to the patient and with at least a low mortality from the operation itself. Second, as to toxemia, it is at least as unfair to say that because toxemia to a grave degree is present during the late stages of this condition no operation should be done, as it would be to claim that because a similar condition with general peritonitis was found in fatal cases of appendicitis, therefore operation in the earlier stages was contra-indicated. On the third point we are prepared to accept the statement that the figures upon which our conclusions are based are inaccurate, but allowing for a degree of inaccuracy, we are still justified in saying that in a considerable number of cases the thrombosis is limited, even at the autopsy, to one or both cavernous sinuses, and the operation reported herein shows that an incision into one of the cavernous sinuses will drain both.

There are 134 autopsies reported, in which a clear statement is made of the sinuses which were involved. In 31 of these the thrombosis was limited to a single cavernous sinus. In 65 both of the cavernous sinuses were involved, while in 28 only had it extended to the petrosal, lateral and other sinuses, thus allowing for great inaccuracy and still leaving the majority in favor of involvement limited to the cavernous sinuses. It is with the hope that surgical interference may be more common and productive of better results in the future, that these cases are reported and the following study of the subject has been written.

*Etiology.*—Thrombosis of the cavernous sinus may be the result of a septic process, may follow injury to the head, direct injury to the sinus or develop in the course of debilitating disease, when it is known as marasmic. Marasmic thrombi are of purely medical interest, and almost invariably affect the longitudinal sinus. Thrombi resulting from injury to the head follow fracture of the skull, blows upon the head or punctured wounds through the orbit. The cavernous sinus is the only one which can be directly injured without involving the skull. Such cases are comparatively rare, only four being reported among those we have been able to collect. When they do occur, the history of injury will be present, and the diagnosis will naturally lie between septic infection of the wound and direct injury to the sinus.

Infective thrombosis may occur by contiguity of tissue, the process extending from the surrounding parts until the sinus is affected, as may be the case in meningitis, disease of the bone or

abscess of the post-orbital space. It may result from extension of the septic process through the tributary veins, or from the extension of thrombi in the other sinuses. The first class of cases is comparatively rare and will, as a rule, be preceded by symptoms depending upon the location of the original process. Out of 182 cases reported the eye is given as the source in but four. Thrombosis from extension through the tributary veins is the common origin of primary thrombosis of the cavernous sinus. This extension usually takes place through the ophthalmic vein, whose branches, the frontal, supra-orbital and angular, drain the face and scalp; or from the mouth, nose and pharynx through the pterygoid plexus. We find that out of 182 cases reported the source of infection is given: from the eye 4, nose 9, mouth 14, face 34, and lips 2. Secondary thrombosis, that is, extension through the other sinuses, is probably the most common if we accept all the cases. Out of 149 cases in which an autopsy was made we find 48 in which the disease originated in the ear, causing thrombosis of all or most of the basal sinuses, and in these cases it is fair to assume that the lateral sinus was the first affected.

*Symptoms.*—So many factors enter into the causation of the symptoms presented in these cases, and the cases reported are so unsatisfactory, that it becomes very difficult to judge as to their relative importance. From the nature of the condition, local circulatory disturbance must occur early in the development of the thrombus. If, as is usually the case, the process is an acute one, these changes come on rapidly and give rise to a set of symptoms which is fairly constant.

Septicemia or pyemia are always present to a greater or less extent, and may be sufficient to entirely mask the disease. Cerebral irritation is commonly present, depending upon circulatory disturbances even if meningitis be not present. Headache is constant and occurs early. It is general and is usually described as deep seated. Vomiting, associated with nausea, as a rule, is explained by septicemia rather than by cerebral irritation. As the toxemia increases chills are added, recurring at varying intervals and becoming more frequent as the disease progresses. The temperature is always elevated, with marked remissions. The pulse is rapid, respiration is not remarkable as a primary condition, but pulmonary complications from septic emboli are very common. The above train of symptoms is due to septicemia, and is of little diagnostic value except as demonstrating the presence of that condition.

The patients are always extremely sick early in the disease. They are at first nervous and apprehensive; later, the sensorium is dulled and the condition becomes typhoidal. Cerebral symptoms are explained by high temperature, toxemia, and the circulatory changes associated with thrombosis rather than with organic changes in the brain or meninges. The same may be said of delirium, mental confusion and increased reflexes.

Vertigo was present in Case III as well as in other cases which have been published, but in all of them it apparently had its origin in the ear.

Localized meningitis was found at autopsy in Case II, and has been reported in a few others. Its rarity is readily explained since infection, following the course of least resistance, extends along the course of the sinus rather than through its walls. Paralyzes other than ocular are extremely rare, and when they do occur mean that some complication is present. Ocular paralysis or paresis, as demonstrated by fixation of the pupils or globe, is reported in 28 out of 159 cases. Among the published cases we find eight in which there was paralysis of the third nerve, and two where the fifth was involved. Sufficient involvement of the meninges to result in such typical symptoms as convulsions and retraction of the head is very rare, patients, as a rule, dying of toxemia.

Local circulatory changes depending upon thrombosis are manifested chiefly in the eye. On account of the anatomical position, size and arrangement of the cavernous, transverse and circular sinuses, in a large proportion of cases a thrombus beginning in one cavernous sinus extends with considerable rapidity to the opposite side through the transverse and circular. In but 31 out of 134 cases do we find an involvement of a single cavernous sinus. In certain rare cases one cavernous sinus may be absent or rudimentary, and when either of these conditions exists the symptoms will be confined to one side. If formation of the thrombus be slow, collateral circulation may be established by means of the anastomosis between the inferior ophthalmic vein and the pterygoid plexus; when this occurs the various symptoms dependent upon passive congestion, including proptosis, will not be marked. When the onset is sudden the symptoms dependent upon passive congestion will be marked: exophthalmos with edema of the lids, conjunctivæ and face coming on early, while the frontal, supra-orbital and angular veins are dilated. Within forty-eight hours the process has usually extended to the opposite side with the same train of symptoms, while the condition of the eye first affected usually improves. By this time the general symptoms have become very grave, and as diagnosis becomes easier, the probability of relief by surgical interference is reduced.

The fundus shows dilatation and tortuosity of the retinal veins with retinal edema and, later, hemorrhage. Optic neuritis occurs early. The view of the fundus is soon obscured by haziness or ulceration of the corneæ resulting from pressure.

Ocular paralyzes are mentioned in most articles on this subject, and are quoted in a very considerable number of the cases reported. Such statements are of doubtful value, as it is usually the fact that exophthalmos comes on rapidly and to such an extent as to entirely obscure any paralysis that may be present. In the case reported by Knapp, operated on by Hartley, clas-



sified as thrombosis although it was really a sarcoma, the disease progressed slowly, giving rise to paralysis of the third, fourth and sixth nerves, with anesthesia over the area supplied by the fifth nerve.

Diplopia is one of the early symptoms, probably more common than it would appear from the fact that it is only noted in two out of 159 cases. It is usually in all directions, but in one of the cases it is said to have been limited to the vertical. This symptom is due to displacement and defective mobility of the eye as a whole rather than to paralysis. The pupil is dilated and may or may not react to light and accommodation. Where the exophthalmos is not very marked it usually reacts. Vision diminishes rapidly and the eye is blind within a few days. In one case which recovered, the eye was left permanently blind. The color sense is not changed, and there is not usually any change in the field; three cases are reported, however, in which the field was diminished. Edema of the mastoid is commonly given as one of the symptoms of thrombosis of the cavernous sinus; it is, however, as far as we are able to judge, due to thrombosis of the lateral sinus.

**Diagnosis.**—Certain rare cases occur in which, for one reason or another, exophthalmos is absent in cases of thrombosis or obstruction to the cavernous sinus, but these cases are rare, and when they do occur are usually of slow onset and most frequently secondary, through some other sinus, or due to inflammation within the skull. When exophthalmos is present and associated with symptoms of toxemia, the case is always a suspicious one. Under such circumstances differential diagnosis must lie between orbital cellulitis and thrombosis of the cavernous sinus. It must also be remembered that a process beginning as orbital cellulitis may readily extend to the cavernous sinus. The changes in the fundus are never so marked in orbital cellulitis; obstruction to circulation is much less, and the headache is supra-orbital rather than deep seated. Constitutional symptoms are much less severe in orbital cellulitis, and if the symptoms extend to the other eye the diagnosis of thrombosis of the cavernous sinus is practically assured. When the source of infection exists in any of the regions which are drained into the cerebral sinuses, and when the symptoms presented are suggestive of circulatory disturbances within the skull, the possibility of sinus thrombosis should always be considered.

**Conclusions.**—If we allow for the possibility of error in the cases reported, and we are entirely justified in so doing in a condition where so little is known and the symptoms are so indefinite, we must recognize thrombosis of the cavernous sinus as an extremely fatal condition. There is no way of deciding what the mortality in unoperated cases really is. The majority of writers on the subject consider it almost, if not quite, necessarily fatal. If we tabulate all the cases reported, we might arrive at a false opinion as to its fatality.

Cases are reported so inaccurately that it is usually impossible to judge as to whether good reason existed for the diagnosis. At least it will be accepted that if not always fatal it is always serious, and fatal in the vast majority of cases.

Death following this condition is due to septicemia or pyemia, and, in well-established cases, operation in one form or another offers the only hope of recovery. Excision of the eyeball with curettage of the ophthalmic vein is insufficient, and is recognized as being so even by the advocates of this method. Operation upon the lateral sinus has apparently, in a few cases, relieved thrombosis in the cavernous sinus, but it is usually without effect, and must be so if the thrombus is a primary one or is well formed.

It has been recognized by several authors that the rational treatment would consist in opening the cavernous sinus directly, but this has not been attempted on account of the grave difficulties and dangers which were supposed to be associated with it. So far as is known, this operation has been done but twice, once in the case reported in this paper and again in that of Hartley and Knapp one month later. Hartley's operation demonstrated that it may be done without grave danger to the patient, providing that patient be in fairly good condition. In his case, which was not an acute one, the patient withstood the operation and lived for several months, dying as a result of his original disease, sarcoma. The case reported here is entirely in accord with this view, as certainly his condition was not made worse by the operation.

Our case shows that an incision into one sinus instantly and completely relieved the interference with circulation in both. It also demonstrated the fact that such an operation is not associated with extreme difficulty, that it can be done under almost primary anesthesia, not associated with any degree of shock, finished within a few minutes,—in this case eight,—and that the hemorrhage is easily controlled.

These two operations would apparently justify our belief that thrombosis of the cavernous sinus is distinctly an operable condition, and that the operation described herein holds out reasonable hope that its acceptance may be followed by a decrease in the present mortality in this serious condition.

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## THE CITY CONSUMPTIVE HOSPITALS AND THE DUTY OF THE MUNICIPALITY AND PEOPLE REGARDING CONSUMPTION.<sup>1</sup>

BY EDWARD O. OTIS, M.D., BOSTON.

IN a republican form of government, such as ours, where the rule of the people is supreme, cities and towns are left largely to themselves in the regulation of their internal affairs. They can do little or much, as they please, regarding sanitary, educational, social or other matters pertaining to their welfare, comfort, amusement or protection. They can be extremely paternal to themselves or apathetically indifferent. They can tax themselves for free bath establishments, free music, free hospitals and public playgrounds, or go without them, or leave it to the individual citizens to provide some or all of them, if a philanthropic spirit is active among them.

The temper of American civilization, however, is in the direction of a generous provision by the municipality of such things as are conducive to the well being, protection and elevation of its people; hence the strict inspection of plumbers' work, compulsory vaccination, the high school, public library and city hospital.

This is especially the case in regard to the sick poor; both the city and private charity work together to afford them a fair opportunity for recovery or, if this has passed, a decent place in which to die, with the one exception of consumption. The appeal of the suffering poor is not to a soulless corporation or a hard-hearted public, but to a warm-hearted, quickly responsive people, when once they realize the need and its urgency. When the city of Boston, for example, fully realized the pathetic case of the poor, hopeless consumptive, it quickly responded and appropriated \$150,000 for a consumptive hospital.

It is peculiarly the province and duty of the medical profession to clearly impress upon the community the existing needs and the remedy, and we may be sure that they will soon find a way to secure that remedy. We, as physicians, are all agreed that the proper care and isolation of pulmonary tuberculosis is a most pressing need, and the sanatorium and consumptive hospital is the remedy. The fact is now pretty thoroughly realized that, in proportion to other diseases, the ravages of consumption are excessive, continuous and appalling. We have become so used to it that it makes but little impression upon us, or else we take it as inevitable, a hope-

<sup>1</sup> Read before the Fall River Medical Society, Members of the Municipal Government and others, Feb. 26, 1902.

less disease against which it is useless to struggle; at least this was the general attitude of mind until quite recently. Present facts teach us, however, as we all know, that consumption is contagious or communicable, and hence avoidable; that it is a very curable disease, especially when taken early, as the experience at Rutland has shown us; that its mortality can be steadily and not very slowly reduced, as is taking place, for example, in England, Germany and New York.

But society has arranged itself upon the basis of a certain yearly mortality, and it would be quite inconvenient and more or less of a calamity if nobody died in any locality in a twelvemonth, as was the experience in that fabled community where the old lady kept death charmed in her pear-tree. Why not, then, as well die of consumption as of any other disease? Because every man born into this world has a right to live out his active life, and a duty to make it useful to the community; old age is the only normal and natural exit from the world.

Now, it is just in the active and most useful period of a man's life that consumption most frequently strikes him; hence the loss to himself, his friends and the community.

If time permitted, it would be not only interesting but startling to try and estimate in dollars and cents this enormous loss to any community by removing so many active members. It is quite unnecessary, however, to dwell longer upon the fact of the great prevalence of, and resulting loss and suffering from, pulmonary tuberculosis. We all admit it, and our own individual experience affords us abundant proof of it. The practical question for us is to determine reasonable methods by which we can hope to restrict the ravages of the disease to the narrowest limits, and perhaps eventually strangle it entirely, as has been done with leprosy, a kindred disease. We must work from two different directions: (1) Directly, by preventing the spread of the disease contagion, the tubercle bacillus, and (2) indirectly, by fortifying the resisting power of the individual;—the first is more properly a work to be organized and more or less completely conducted by the municipality, while the second must largely be left to the individual and private philanthropy.

To prevent the spread of a contagious disease we must know where the existing cases are; hence the unanswerable argument for compulsory notification. Further, we must provide means of isolation, when from helplessness, ignorance, carelessness or willfulness, the consumptive, in his abode, will not or does not properly and safely dispose of his sputum; hence the need of city consumptive hospitals for the advanced cases, where, besides isolation, proper treatment can be given.

But it is not alone the advanced cases, confined to their rooms, who may spread contagion. Those in the earlier stages, who are still able to attend to their vocation, are, in my opinion, quite as dangerous, on account of their increased opportunities

of disseminating tubercle bacilli in going about or at their trade. Recently a cook came to my clinic with well-marked signs of the disease, who was working fourteen hours a day at her occupation. Hence, for such cases, the curable or hopeful ones, sanatoria in the country are necessary, like Rutland, both for isolation and cure. In my opinion, there is immediate need of another, one being devoted to women and the other to men.

"Such institutions," it has been argued, "could not possibly accommodate all the consumptives, they are so numerous. Why attempt to care for and isolate the comparatively few?" Because by isolating one consumptive we may prevent him from infecting others—it may be, many others. We destroy his sphere of contagious influence. Further, if he recovers, we save a useful member of society and send forth a trained teacher of prevention by the use of fresh air and wholesome living, and one who realizes the danger of the dried sputum. We are already beginning to recognize the effect of the missionary work of the Rutland graduates, a constantly increasing number.

The selfish or self-protective element also has its influence. As we restrict by isolation this contagious disease, we are constantly diminishing the risk to ourselves. You and I know how to properly dispose of our sputum; but our servant may not, and, in consequence, may infect us or a member of our household.

Communities, as such, assume the responsibility of providing for the destitute who are sick in their midst, and a considerable amount is appropriated each year for this purpose. The destitute consumptive, especially the advanced cases, is the most frequent applicant for such aid, as his is the most common disease. Is it good judgment, is it economical, to expend the money in keeping him at his wretched home, a menace to the rest of the family; send him to the almshouse, unfitted for the care and hopeful treatment of such cases, or expend the same amount, very likely less, in placing him in a properly equipped consumptive hospital? Such a consumptive hospital, located in a wholesome quarter or suburb of the city, can be established by a collective contribution of all the citizens in the form of taxation, or by voluntary private contributions, as is the case with the great Brompton Hospital in London. As the need is urgent, the former plan would appear to be the more speedy and sure. No man in normally good health is very likely to contract consumption, I believe, even if he is exposed many times to the infecting micro-organism; hence the importance of all efforts to improve and maintain the health of the workingman and his family. We shall never stamp out consumption by consumptive hospitals and isolation alone; that is only one-half of the problem; the other half is equally important: to establish and maintain the resisting power of the individual. To this end, we must work in many directions, or, rather, continue measures already begun, such as tenement-house and factory inspection; model workmen's homes (it is the long-continued

dissemination of the dried sputum in confined places like dark, damp, sunless tenement-houses, illy ventilated and dusty workshops and factories, where the greatest danger lurks. Spitting in cars and on the streets, to which our attention is so constantly directed, is, in my opinion, a source of comparatively slight danger; sufficiently short hours of labor to permit of proper rest (mental and physical) and opportunity for obtaining out-door air; the prevention of the abuse and, so far as possible, the use of alcohol; the proper care of children and pregnant women and nursing mothers; instruction in the preparation of wholesome, nutritious food; in personal cleanliness and ventilation; opportunities for mental and spiritual uplifting, such as the various friendly societies and clubs are affording; in brief, we must work in all the innumerable directions which will help create and maintain a wholesome, healthy existence, which means a successful resistance to the tubercle bacillus.

If it were possible to arrive at a tolerably accurate estimate of the expense incurred by the city from first to last in caring for its consumptive poor, which ultimately it has to do, either directly at their homes or indirectly in the almshouse or elsewhere, I am convinced that we should not only be surprised at the amount, but that we should find it sufficient to maintain those, unsuitable for sanatorium treatment proper, in a consumptive hospital, and, in addition, quite likely find that there was a surplus to provide a sinking fund for the cost of the hospital. As I have elsewhere said, "The outlay would by no means be an entirely new and extra one, but only in another and more economic direction." Moreover, by this economic and scientific method of treating the poor consumptive we are constantly removing sources of contagion, and in consequence reducing the number of cases. There is the still further advantage of affording proper treatment to the consumptive, and not simply keeping him until he dies. Some lives will be saved thereby, for further usefulness. We have all had the happy experience of seeing some apparently hopeless cases arrested.

I have not referred to the humanitarian side of the question, which I think we are all disposed to consider. The poor consumptive is our neighbor, and we can hardly with a satisfied conscience complacently pass by on the other side. His case is pathetic and appealing in the extreme, and his case might be ours. Shall we not afford him a chance, as we do to his fellow-workman who happens to sustain a sudden injury or is suffering from pneumonia or appendicitis? It is not knowingly his fault if he is suffering from this lingering, wearisome disease. Nay, rather it may be much more our fault if we employ him in an illy ventilated shop or lease him an unsanitary abode!

As one who has passed through the bitter experience pertinently remarks: "For him who thinks that it is unnecessary to do anything I have one suggestion: let him contract the disease

and try to fight for his life without money or friends."

In conclusion let us sum up the argument:

(1) Consumption is one of the most prevalent diseases, especially among the poor.

(2) It attacks its victims at the most useful period of their lives.

(3) It is contagious or communicable and hence avoidable.

(4) It is very curable, especially so when taken at its inception.

(5) It is most prevalent in crowded portions of a city and in tenement-house existence.

(6) The contagion is restricted, as with other contagious diseases, by isolation.

(7) The dried sputum is the principal source of contagion.

(8) Sanatorium treatment, especially for the poor, gives the best results with favorable cases.

(9) Sanatoria and consumptive hospitals afford the best means of isolation.

(10) By means of such institutions, we steadily and surely reduce the existing number of cases.

(11) Every means which increases the resisting power of the individual decreases his chances of contracting the disease.

(12) This resisting power is established and maintained by favorable environment, as to abode, place of labor, rest, food, etc.

(13) Economically, it is probably less expensive to care for the poor consumptive in a sanatorium or consumptive hospital than in any other way.

(14) Morally, we owe the destitute consumptive in our midst a reasonable opportunity for recovery or a decent place to die in.

Sanatoria and consumptive hospitals are in the air. The people are awakening to their importance. Rutland is teaching the lesson. Soon, in every city, I trust, we shall see the agitation going on, until the mass of the people rise up and willingly tax themselves for the benefit of the unfortunate poor consumptive and their own protection.

## Clinical Department.

### A CASE OF UNILATERAL PROGRESSIVE FACIAL ATROPHY.

BY J. W. COURTNEY, M.D., BOSTON.

ALTHOUGH the number of reported cases of this curious disease has grown steadily in the last decade, the sum total is still sufficiently small to warrant the presentation of an additional case.

The disease is essentially one of early life. Among the alleged exciting causes are exposure to cold, cranial traumatism, and the acute infections. In a certain number of cases there is mention of such prodromes as pain and paresthesia of the face and spastic contraction of the masseters. In the majority the first symptom noted is a peculiar whitish discoloration of the face, with

thinning of the integument. This is usually followed by absorption of the subcutaneous fat and grooving of the face. A not unusual accompaniment of this stage is a trophic disturbance of the hair on the affected side, which may bring about a loss of color, cause the hair to fall out, or interfere with its growth. The cutaneous sweat glands appear to escape, but the sebaceous secretion is abolished. The intrinsic muscles of the face are permanently spared, while the masseters are often affected to some degree. The mouth may be drawn toward the affected side. The bones of both jaws and the smaller bones of the face may be much atrophied. Even the cartilages of the nose may in time undergo a diminution in volume. The teeth often show marked defects. Sensation is not as a rule affected.

Among the various pathogenetic theories put forward in explanation of the disease the most sat-

The case to be reported differs in several features from the classical description. In the first place, it is very unusual, in that it is the right side of the face which is affected. The other points of difference will appear from the history.

The patient is a single man, twenty years of age, and by occupation a clerk. He was born in Poland and has been in this country fourteen years. I first saw him at the nervous clinic of the Boston City Hospital, Sept. 6, 1901. The family history, so far as known, was negative as to nervous and mental diseases. As to his previous history, he had had measles at five years, but no other acute or chronic illness. There was no evidence of venereal disease. He was a moderate consumer of beer and tobacco. His present complaint dates back twelve years, when he noticed that the right side of the face was not as full as



isfactory is that which assumes a neuritic process brought about by some accidental factor (trauma, infection, etc.) in a congenitally defective fifth nerve.

The course of the disease is a steadily progressive one, the general health being rarely affected. No cures have as yet been reported.

There are no therapeutic measures of avail, although many have been recommended. Against certain of these a word of precaution may not be out of place. This applies particularly to the use of local applications and to surgical procedures. The former are very apt to produce either excoriations or a dermatitis difficult of cure, while the latter are so far divorced from common sense that their recommendation by some American surgeon has led Eulenburg to characterize the idea as one originating on the basis of a type of surgical paranoia somewhat common in this country.

the left. He thought that the right side was normal and that the left was swollen. The wasting of the face has continued, however, until it presents today the appearance shown in the accompanying photographs.

Physical examination, outside of the condition of the face, was nearly negative. The patient is in an excellent state of general health. Aside from the atrophy of the integument and subcutaneous fat, there is but little of note. The facial and masticatory muscles are but slightly affected. There is no discoloration of the skin, and the Faradic excitability of the various muscles is normal. Sensation is normal. The fundus oculi is normal. The lower jaw projects somewhat and does not appear to be as convex on the right as on the left side. The scalp and hair are alike on the two sides, the ears are symmetrical and the muscles of the right shoulder are not affected.

During the time the patient has been under my observation, a period of about five months, he has had fairly constant treatment with Faradic electricity, and in this rather short time the atrophy seems not to have progressed. It would, however, be hazardous to draw any conclusions from this fact as to the efficacy of the treatment. In all probability the atrophy will follow the regular course.

## Medical Progress.

### PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

IN consequence of the unusual prevalence of smallpox at the present time, the greater portion of this summary will be devoted to the allied topics of smallpox and vaccination.

#### THE PREVALENCE OF SMALLPOX IN THE CLOSING YEARS OF THE NINETEENTH CENTURY.

The following data relative to the prevalence of smallpox, as determined by the mortality returns of different countries, have been compiled from such sources as are available, among which the compiler desires to acknowledge the valuable assistance offered by the officials of the Boston Public Library.

*Comments upon the Table. (See page 466.)*

The table is divided into two groups of countries. In the first group, composed of the German Empire, England, Scotland, Ireland, Sweden, Switzerland and Holland, the mean annual death-rate from smallpox for the 20 years was in no country higher than 40 per million. The mean population of this group was about 100,000,000, and the deaths from smallpox during the years of record were 23,732. From all that can be learned from the statistics of the component states of the German Empire for the years 1880-1885, it is probable that the number of deaths from smallpox in three years would bring the completed total of the group up to about 29,500.

In the second group, composed of Italy, Japan, Belgium, Austria, Hungary, Spain and British India, the mean annual death-rate from smallpox was in no country less than 175 per million. The mean population of this group was about 350,000,000, and the deaths from smallpox were 2,630,115. The number of deaths from smallpox, which occurred in the years marked \*, cannot be told with accuracy, but from such information as can be gathered from the sanitary reports of these countries, it appears probable that the missing numbers would swell the total deaths from smallpox in this group to at least two and three-fourths millions.

The combined population of these two groups constitutes about one-fourth the total population of the world.

**GROUP I. German Empire.**—The smallpox mortality of the German Empire is available for

1886 and the succeeding years. That of Prussia for the years 1880-1885 was considerably higher than that of the whole empire during the succeeding years.

**Scotland.**—The highest death-rate from smallpox in Scotland in the 20 years was 31.5 per million living in 1894, and in two years, 1890 and 1891, there were no deaths from this cause.

**Ireland.**—The highest smallpox mortality in this country was 75 per million in 1880, and the next highest 31.8 in 1895, and in four years there were no deaths from this cause.

**Sweden.**—In Sweden the mean annual death-rate from smallpox for the 20 years was 9.3 per million, but if the period is divided into two parts of ten years each, the death-rate from smallpox in the first half was 18 per million, or 15 times as great as that of the second half (1.2 per million).

**Switzerland.**—The death-rate from smallpox has been exceedingly variable, ranging, during the 19 years of record, from only .3 per million in 1895 and 1897 to 149 per million in 1885.

**Holland.**—Here also the range is extremely variable: there were no deaths from smallpox in 1899, but in 1883 there were 673, or 160 per million inhabitants.

**England.**—In England the smallpox mortality has varied from as low as .8 per million in 1897 to 119 per million in 1881, the mean for the whole period being 33.8 per million, and was the highest of this group.

**GROUP II. Italy.**—The figures of Italy include the 13 years 1887-1899, and show a high, but diminishing mortality from smallpox, the highest being that of 1888, or 612 per million, and the lowest 7 per million in 1899, the mean of the 13 years being 179.

**Japan.**—In this country the extremes are still greater, ranging from as low as .6 per million in 1890, to 1,122 per million in 1882. In the year 1879, not included in the table, the death-rate from smallpox was 3,060 per million, the total number of deaths from smallpox in that year being 113,228. The mean death-rate from smallpox for the 17 years of record was 201 per million, or, if 1879 is included, 347 per million.

**Belgium.**—In Belgium the highest death-rate from smallpox in this period, 749 per million, was in 1880, and the lowest, 20 per million, occurred in 1896. Even this lowest rate was nearly five times as great as the highest rate of the adjoining country, Germany.

**Austria.**—During the 19 years of record the mortality from smallpox ranged from 962 per million in 1882 to 36 in 1896.

**British India.**—In this country, with a mean population of about 216,000,000, during the 20-year period 2,057,227 persons are known to have lost their lives from smallpox, and there was no single year in this period in which the deaths from this cause were less than 40,000. In the two single years, 1878 and 1879, preceding this period the deaths from smallpox amounted to more than half a million (505,337), while those



of 1883 and 1884 were still greater in number. Even in the best year of the period, the smallpox death-rate was 43 times as great as that of the

"In the province of Bombay smallpox was most fatal in Gurgaon, where great opposition has always been offered to vaccination, owing to the

DEATHS FROM SMALLPOX IN DIFFERENT COUNTRIES. ABSOLUTE AND RELATIVE FIGURES.  
ABSOLUTE FIGURES.

GROUP I.								GROUP II.							
German Empire. <sup>1</sup>	Scotland. <sup>2</sup>	Ireland. <sup>3</sup>	Sweden. <sup>4</sup>	Switzerland. <sup>5</sup>	Holland. <sup>6</sup>	England. <sup>7</sup>		Italy. <sup>8</sup>	Japan. <sup>9</sup>	Belgium. <sup>10</sup>	Austria. <sup>11</sup>	British India. <sup>12</sup>	Hungary. <sup>13</sup>	Spain. <sup>14</sup>	
1880	*	10	389	175	173	79	648	*	8,210	4,135	14,232	69,849	13,386	12,165	
1881	*	19	72	299	167	75	3,098	*	12,995	2,721	18,019	71,647	12,467	10,548	
1882	*	3	129	159	22	153	1,317	*	41,849	1,570	21,154	85,148	12,160	19,333	
1883	*	11	16	125	24	673	967	*	12,189	1,796	13,310	232,436	6,789	16,903	
1884	*	14	1	58	64	62	2,234	*	410	1,355	11,521	333,382	3,992	10,648	
1885	*	39	4	4	426	31	2,827	*	3,329	1,638	13,212	80,785	4,746	*	
1886	197	24	2	2	182	72	275	*	18,676	1,213	8,794	51,112	11,290	*	
1887	168	8	14	5	14	18	506	16,249	9,967	610	9,591	65,757	15,740	*	
1888	112	3	3	9	17	1	1,026	18,110	853	865	14,138	93,568	*	*	
1889	200	8	0	2	3	10	23	13,416	328	1,212	12,358	125,453	*	8,472	
1890	58	0	0	2	32	1	16	7,017	25	636	5,935	116,321	*	6,183	
1891	49	0	7	2	26	10	49	2,910	721	1,300	6,838	93,745	*	9,081	
1892	108	11	0	4	35	49	431	1,453	8,409	2,528	6,087	92,680	3,426	6,854	
1893	157	68	1	25	15	190	1,457	2,638	11,852	2,103	5,821	63,178	1,224	5,194	
1894	88	129	72	21	51	625	820	2,606	3,342	537	2,512	41,609	*	*	
1895	27	47	146	0	1	79	223	2,998	268	298	1,164	43,328	*	*	
1896	10	2	4	2	8	34	541	2,033	3,388	130	897	132,784	*	*	
1897	5	10	3	1	1	1	25	1,003	*	140	1,450	160,059	*	*	
1898	15	2	0	1	2	7	253	420	*	158	2,521	55,798	*	*	
1899	28	1	1	1	*	0	174	214	*	257	*	48,598	*	*	

\* Reports for the years marked \* were not available. The deaths from smallpox in Scotland in 1900 were 42, and in 1901, 205.

DEATH-RATES FROM SMALLPOX PER MILLION INHABITANTS.  
RELATIVE OR SIGNIFICANT FIGURES.

German Empire.	Scotland.	Ireland.	Sweden.	Switzerland.	Holland.	England.		Italy.	Japan.	Belgium.	Austria.	British India.	Hungary.	Spain.	
1880	*	2.8	75	28	61	19	25	*	222	749	647	356	853	724	
1881	*	5.1	14	65	59	14	119	*	351	487	819	362	789	624	
1882	*	8	25	34.6	8	37	50	*	1,122	277	962	430	765	1,172	
1883	*	3.0	3.2	27.2	9	160	36	*	327	314	605	1,174	424	988	
1884	*	3.7	12.6	22	15	83	83	*	11	234	523	1,650	245	619	
1885	*	10	.8	.9	149	7	104	*	88	280	675	450	287	*	
1886	4.2	6.2	.4	.4	63	17	10	*	485	205	382	249	676	*	
1887	3.5	2.1	2.8	1.1	5	4	18	550	256	102	417	313	932	*	
1888	2.3	.8	.6	2	6	.2	36	610	22	144	615	445	*	*	
1889	4.1	2	—	.4	1	2	.8	449	8	199	515	570	*	481	
1890	1.2	—	—	.4	11	.2	.6	233	.6	105	247	529	*	350	
1891	1.0	—	1.5	.4	9	2	1.7	96	18	212	235	426	*	508	
1892	2.2	2.7	—	.9	12	11	15	48	205	408	253	403	193	381	
1893	3.1	16.5	2	5.2	5	40	49	86	289	334	243	274	69	285	
1894	1.7	31.5	15.7	4.4	16	131	27	85	80	85	102	181	*	*	
1895	.5	11.5	31.8	—	.3	16	7	97	6	47	47	188	*	*	
1896	.2	.5	.9	.4	2.5	7	18	65	81	20	36	577	*	*	
1897	.1	2.4	.6	.2	.3	.2	.8	32	*	21	57	696	*	*	
1898	.3	.5	—	.2	.6	1.4	8	13	*	24	98	243	*	*	
1899	.5	.2	.2	.2	*	—	5	7	*	38	*	211	*	*	
Mean.	1.8	5.3	9	9.3	22.6	24.2	33.8	179	201	206	380	475	516	605	

SOURCES OF INFORMATION FOR THE FOREGOING TABLE.

<sup>1</sup> Germany. Ergebnisse der amtlichen Pockentodesfallstatistik im Deutschen Reich (1886-1890).

<sup>2</sup> Scotland. Reports of the Registrar General of Scotland.

<sup>3</sup> Ireland. Reports of the Registrar General of Ireland.

<sup>4</sup> Sweden. Bidrag till Sveriges officiella Statistik, 1899, p. 40.

<sup>5</sup> Switzerland. Statistisches Jahrbuch der Schweiz, 1900.

<sup>6</sup> Holland. Bulletin de l'Institut International de Statistique, x, 83.

<sup>7</sup> England. Reports of the Registrar General.

<sup>8</sup> Italy. Statistica delle Cause di Morte, Rome, 1901, p. 12.

<sup>9</sup> Japan. Reports of the Central Sanitary Bureau, Tokio, 1900.

<sup>10</sup> Belgium. Annuaire Statistique de Belgique, 1901.

<sup>11</sup> Austria. Oesterreichisches Statist. Handbuch, Wien, 1900.

<sup>12</sup> British India. Annual Reports on the Sanitary Measures in India.

<sup>13</sup> Hungary. Bulletin de l'Institut International de Statistique, vol. x.

<sup>14</sup> Spain. Idem.

highest year in Germany, and the mean mortality from smallpox (475 per million) was 264 times as great as that of Germany.

Those districts in India suffered least which were most thoroughly protected by vaccination.<sup>1</sup>

<sup>1</sup> Sanitary measures in India, report of 1876.

existence in the district of the celebrated temple of Sitla, the goddess of smallpox."<sup>2</sup>

"The greatest mortality from smallpox occurred in that part of the province of Oudh in which vaccination has made least progress.

<sup>2</sup> Report of 1876.

"Children, as usual, were the chief sufferers; 96% of the deaths from smallpox were among children under 12."<sup>3</sup>

*Hungary.*—In Hungary the record is incomplete, but for the five years of record the mortality from smallpox ranged from 932 per million in 1887 to 69 in 1893, with a mean death-rate from this cause for the ten years of 516 per million.

*Spain.*—In Spain the record is also incomplete. The smallpox death-rate showed less variation than in any of the other countries. In no one of the years of record was it less than 285 per million, and the mean death-rate from smallpox in these years was 605, or 336 times as great as that of Germany.

*Russia, France and Denmark.*—The published records of these countries are quite incomplete. Those of Russia, in Europe, for the six years 1887-1892, show that 90,934 deaths from smallpox occurred in those years, which was equivalent to a death-rate from this cause of 175 per million.

In France the records do not pertain to the whole country, but to the larger cities, and in these cities, with a population of about 9,750,000, there were 17,013 deaths from smallpox, or a mean annual death-rate of 213 per million. It is no wonder that the German medical officers are wont to point out with pride the distinction between the conditions of the French and the German cities in this respect, and the reports of the Comité Consultatif d'Hygiène of France occasionally contain mournful admissions of the same fact.

In Denmark the records pertain only to the towns, 74 in number, with a mean population of about 725,000. The deaths from smallpox in these cities in the 20 years 1880-1899, show a very low annual death-rate from this cause of only 4.3 per million.

#### *Other Countries not Embraced in the Table.*

*Nubia.*—"The smallpox comes every autumn and lasts till spring, and large numbers die of it."<sup>4</sup>

*The Soudan.*—"The smallpox mortality is high. One tribe lost one-third by it" (about 1890<sup>5</sup>).

*Egypt.*—"The result of the introduction of vaccination into Egypt was an increase of the population, by saving of life amounting to no less than 2,000,000."<sup>6</sup>

"In Asia Minor, Syria and Mesopotamia, where they have not succeeded in introducing vaccination as a general practice in place of inoculation, smallpox still plays as prominent a part in the sickness and mortality as it used to."

"This is true also of Persia and Arabia, and in a still higher degree of India and Farther India."

<sup>3</sup> Report of 1883.

<sup>4</sup> Report of Royal Commission, England, 1897, Final Report, p. 747.

<sup>5</sup> Report of Royal Commission.

<sup>6</sup> Loc. cit.

"Many regions of China, where vaccination is very imperfectly practised, and inoculation is still in full repute, constitute permanent centres of the disease, and have often been ravaged by disastrous epidemics of it."

"In Corea, Cheval found almost the whole population pock-pitted. In eight months after its introduction into the Sandwich Islands, it carried off 8% of the population."<sup>7</sup>

*The United States.*—In this country, constituted as it is of a large number of states with variable laws relating to infectious diseases, and with a population subject to constant migration, many of whom are either unvaccinated or have not been revaccinated since childhood or infancy, smallpox is bound to occur spasmodically. It is the unvaccinated immigrant who usually introduces smallpox into a community in this country, although, as at Holyoke, Mass., and other paper-mill towns, infected rags and clothing may occasionally be responsible. Among recently arrived German or Swedish immigrants smallpox is almost never found at the present day, for obvious reasons, but among the French Canadian unvaccinated immigrants from the rural districts of Eastern Canada, smallpox is a matter of very frequent occurrence, notwithstanding the serious experience of Montreal in 1885.

One of the great and pressing needs of the United States today is a strong central sanitary board at Washington, independent of other departments of the government, like the Imperial Board of Health of Germany, capable of investigating all sanitary questions and of giving advice to the multitude of small unprotected communities, which suffer untold losses in consequence of ignorance, neglect, and the want of proper information upon sanitary subjects. The spasmodic methods of our great cities and towns in regard to vaccination, whereby this practice is suffered to remain neglected in the intervals between epidemics, is in strong contrast to that of Germany, where vaccination is constant, uniform, annual, and therefore protective of the entire population.

(To be continued.)

## Reports of Societies.

### SURGICAL SECTION OF THE SUFFOLK DISTRICT MEDICAL SOCIETY.

F. B. LUND, M.D., SECRETARY.

REGULAR meeting, Feb. 26, 1902, DR. F. S. WATSON in the chair.

DR. F. S. WATSON: There is something in the atmosphere of our Western States, and in the freedom of their communities in matters of thought, that breeds men of strong purpose and peculiarly favors original methods of work.

<sup>7</sup> Hirsch: Historisch pathologisch, geog., vol. i, chap. vi, Blatt. n.

Among the men of this stamp is one of our profession, whose achievements deserve to stand high in the list of the best that have come from the minds and hands of American surgeons. Six years' study of his surgical work, as it has appeared in publications, and the application of such of his procedures as I have had the opportunity to put in practice, convinced me that there was no greater satisfaction that I could give to this society than that of seeing and hearing personally the gentleman who has been so good as to accept my invitation to come before you here tonight, and who has undertaken the long journey from Minnesota for that purpose — Dr. William H. Mayo, of Rochester, Minn.

DR. MAYO read a paper entitled

PROBLEMS RELATING TO SURGERY OF THE STOMACH.<sup>1</sup>

DR. WATSON: In the opening of the discussion of the admirable paper from Dr. Mayo, I have the further pleasure of introducing to the society another distinguished surgeon from the West, Dr. Ochsner, from whom I have learned more in the last few days than it is often one's good fortune to be able to do from any one individual.

DR. OCHSNER briefly addressed the society.

DR. J. C. MUNRO: There are two minor points that I wish to bring up in connection with the paper tonight:

First, the association of acute appendicitis with a gastric ulcer, of which I have had two cases. One recovered from his double trouble without operation; the other, progressing most satisfactorily after drainage of a peritoneal cavity, generally infected from a gangrenous appendix, died suddenly from severe hemorrhage from an ulcer of the stomach. In both cases the interest lay in the elimination of a diagnosis of perforating ulcer.

Secondly, I wish to put in an earnest plea in behalf of palliative operation in inoperable cancer of the pyloric half of the stomach. My cases, three in all, not including exploratory operations in this condition, those where it was unjustifiable to do more than explore, are too few to bring conviction, and yet, with proper selection, I strongly believe that we have a most humane measure for alleviating the physical and mental sufferings of a most pitiable class of patients. The type that I refer to is that in which the growth obstructing the pylorus fills the distal half of the stomach, is too large for excision, with beginning or perhaps extensive carcinomatous infection. These patients suffer from profuse, painful vomiting, starvation and the horror of being given up to die without any attempt at relief. An anterior gastro-enterostomy with a Murphy button, quickly and safely performed, allows the ingestion of food by mouth in a day or two; the intense suffering from starvation is done away with, the patient is hopeful and encouraged, and, as in one of my cases, he may grow fat. Of course, death comes eventually, but the patient dies more comfortably from a general malignant

infection without the intense and hopeless vomiting; that which does come from invasion of the entire stomach being infinitely less distressing than that which is caused by a tightly shut pylorus. I firmly believe that this is a means of palliation that we must seriously consider where it is suitable; it seems essential, however, that the pyloric drainage should be blocked and that healthy wall at the cardiac end should be present. Other cases are best left alone.

The reader tonight, Mikulicz, Mayo Robson and others with large experience, have so definitely established the benefit that comes from surgery in selected cases of gastric lesion, that it would be a supererogation for me to add the results of my limited experience. I will willingly modify my views as to the gravity of ulcer of the stomach, but it is none the less disconcerting to feel that at least half the cases that I have seen have died from hemorrhage or perforation. This is, of course, a much distorted picture of the gravity of the lesion, and yet it must impress me to some extent. I will merely beg for earlier consideration by the surgeon in those cases that do not progress smoothly and rapidly under conservative measures. All others, and fortunately the percentage is fairly large, are medical and best treated medically, so that naturally they are rarely seen by the surgeon. We must remember that prolonged starvation, repeated losses of blood, persistent sepsis however mild, all make an operation, otherwise simple, a very grave affair. With judicious and timely interference, where necessary, and both the physician and the surgeon should have a voice in determining the necessity, it is rare that an operation should be demanded as a last resort, and when, as I have shown elsewhere, nearly half of the cases of abdominal lesion that come to us at the hospital are too late by days or weeks, it places the odium of some of our failures, not on surgery, but on the failure to recognize conditions that are surgical, when surgery would be the safest and most conservative means of treatment.

Until a larger experience simplifies the technique of posterior gastro-enterostomy I am inclined to make use of the anterior joint, low down, with the aid of the Murphy button, as it seems to me that the risk of infection and the shock from the length of operation are much lessened, and if the opening will remain patent as well as that made posteriorly with or without the bobbin, the differences in drainage, especially with the patient in the upright position, can be disregarded. In early operations for ulcer the risk from either procedure is extremely small, but in malignant or late cases the difference is quickly magnified, and I should favor the anterior opening. In introducing the button I have tried two methods: passing each half through an independent opening into the cavity of the stomach and gut, and perforating at the site of anastomosis through a minute opening that closely hugs the neck of the button, or else introducing each half through a small slit at the desired place for anastomosis and

<sup>1</sup> See page 451 of the Journal.

closing one end of the slit up to the neck of the button. Either method is satisfactory. Where the button would have to be passed through a close network of large vessels, at the very edge of the stomach, the former method might be less bloody and troublesome.

The scheme of suturing the omentum to prevent the drag on the joint appeals to me strongly. I have reinforced the button anastomosis by sutures in the malignant cases on that very account, but never realized that it could be accomplished so well by using the omentum as Dr. Mayo suggests.

I should like to ask the frequency of pyloric obstruction from gumma or scars following ulceration of a gumma. I think I have seen several well-marked cases.

DR. F. B. LUND: I wish to congratulate the reader upon the excellent advanced work in this field of surgery of which his paper is evidence. He is a pioneer in the opening up of a field which I firmly believe will in the future be of very great importance, and which, to my mind, is as full of promise as any other department in surgery.

The reader has enlightened us upon several points upon which we especially desired information as a guide to our own work. Of the various subjects upon which he has touched it seems to me that the surgery of gastric ulcer has in it the most of interest and of promise. The practical question which confronts the surgeon in operating upon gastric ulcer is whether to perform excision with or without pyloroplasty or do gastro-enterostomy. Although gastro-enterostomy is perhaps the one operation which is of greatest service in these cases, I cannot but believe, as the writer has said, that we expect too much from it and perhaps perform it in cases where excision of the ulcer with or without pyloroplasty would be distinctly preferable. In cases where the pylorus is little, if at all, contracted, and the stomach not dilated, it is better to excise the ulcer and do away with the complicated looping of the bowel necessitated by gastro-enterostomy. The indication for gastro-enterostomy, it seems to me, is primarily dilatation of the stomach and spasm of the pylorus, and its employment in ulcer, unless these conditions are present, should be limited to cases where we cannot locate the ulcer or where it is so situated as to be inaccessible for excision. I think the importance of locating the ulcer is very great, and it must be admitted that it is frequently very difficult to do so. Even chronic ulcers which have for months proved intractable to treatment, and have caused frequent and severe hemorrhages, may be so situated, and surrounded by so little infiltration as to make it difficult to locate them by inspection or palpation after the abdomen is opened. Careful search must be made for any very slight thickening or injection of the stomach wall. A guide which I have found of value in two instances is the presence of one or more enlarged glands in the base of the great omentum and along the greater

curvature. These glands were situated opposite ulcers on the pylorus and greater curvature respectively, and were of distinct aid in the location of the ulcers, which revealed their presence by thickening and injection so slight as to leave the operator in doubt as to whether he had correctly located them or not.

I cannot help feeling that excision of the ulcer is perhaps the ideal operation. I had a most excellent result from excision of an ulcer which almost girdled the pylorus. The operation naturally had to be combined with pyloroplasty. The case was of a young man who was operated upon last June after medical treatment had been carried out for many months unsuccessfully, constant vomiting and loss of weight being prominent symptoms. He made an excellent recovery, and today is at work.

In the case of ulcer of the posterior wall with adhesions to the pancreas and other structures in the lesser peritoneal cavity, gastro-enterostomy is, of course, the only operation to consider. Mayo Robson reports very remarkable instances of recovery in desperate cases of this sort. As between anterior and posterior gastro-enterostomy, I think that the posterior operation is preferable in the majority of cases of ulcer, but would emphasize the importance, in cases where the transverse mesocolon is affected by adhesions, of making a large opening and sewing the base of it to the stomach wall, to prevent contraction. I had the humiliating experience of losing a patient this fall, after apparently successful gastro-enterostomy, from kinking of the afferent loop by the contraction of this opening in the mesocolon. I am convinced that with proper technique this would not have happened. It is also important in performing this operation that the opening in the bowel should not be made too close to the duodenum. I was hampered in the performance of the subsequent entero-enterostomy, which was necessary in this case, by the shortness of the afferent loop.

In regard to operations for cancer, it seems to me that in the majority of cases where the patient suffers as he does from pyloric obstruction, and where the situation of the abscess precludes excision or pylorotomy, gastro-enterostomy offers a chance of relief and may prolong the life and promote the comfort of the patient. It seems to me that even a temporary relief makes operation worth while. In these cases of cancer the Murphy button certainly finds a place, as it affords the quickest method of operating, and speed is especially essential in these debilitated patients. It is very advisable to make the opening in the dependent portion of the stomach, as has been so well emphasized by our guest of this evening.

I would like to ask the writer regarding his experience in operations for hemorrhage. Here the indications for operation are still obscure, but I have in my short experience seen two patients die of hemorrhage, where the autopsy showed an ulcer which was easily accessible and could probably have been safely excised. I believe that

hemorrhage from gastric ulcer is much more frequently fatal than is generally believed.

Lastly, I must allude again to the importance of the work of Greenough and Joslin, who found that scarcely more than half the patients discharged from the Massachusetts General Hospital during a period of ten years, as cured of gastric ulcer, remained well. I think it is becoming more and more evident that these ulcers relapse with great frequency, and that if the patient does not recover in from four to eight weeks of medical treatment, surgical operation is indicated. I believe that early operation is generally safe, while late operation is rendered difficult and dangerous by the weakened condition of the patient. I believe that if the surgeon can see these cases early and does not hesitate to operate upon clear indications, the surgical treatment of gastric ulcer will prove of great benefit to humanity.

DR. EDWIN WELLES DWIGHT read a paper entitled

THROMBOSIS OF THE CAVERNOUS SINUS; WITH REPORT OF FOUR CASES, INCLUDING THE CRANIAL OPERATION.<sup>2</sup>

#### THE AMERICAN ASSOCIATION OF PATHOLOGISTS AND BACTERIOLOGISTS.

SECOND ANNUAL MEETING HELD IN CLEVELAND, MARCH 28 AND 29, 1902.

(Concluded from No. 17, p. 444.)

##### A SUBCUTANEOUS GLIOMA OVER THE COCCYX.

DR. F. B. MALLORY of Boston read a paper on this subject, with lantern slide demonstrations. The tumor occurred in a woman forty-four years old. It had been noticed for twenty-five years. It was situated in the median line of the back over the coccyx and lower part of the sacrum, and it was not adherent. When it was first observed it was the size of a hickory nut; during the last year it had grown rapidly until it was larger than a baseball. Microscopically its structure was like a carcinoma, that is, it consisted of masses of cells lying in a connective tissue stroma, but between the cells in the alveoli were fine and coarse refractive fibres, which took the differential stain for neuroglia fibres. The interest in the tumor lies in its situation and also in its histogenesis. It seems probable that it arose from remains of the neural canal; these remains may be demonstrated in most embryos, and unquestionably have in consequence of their origin the potential possibilities of differentiating either in epidermis (dermoid cysts) or into ependymal cells and its derivatives; in this case neuroglia tissue.

##### CAPSULES OF PNEUMOCOCCI AND STREPTOCOCCI STAINED BY A NEW METHOD.

DR. P. H. HISS of New York described new methods for demonstrating capsules on pneumococci, and showed lantern slides. They grow on

ascitic-serum agar, preferably with the addition of 1% glucose. Spread the organism on the cover-glass with a drop of serum or a drop of one of the fluid serum media. Dry in the air and fix by heat. Then stain for a few seconds in a one-half saturated aqueous solution of gentian violet. Wash off with a .25% solution of potassium carbonate; mount and study in this solution. This is a good stain for capsules of the pneumococcus in the blood or serum of infected animals. Pneumococcus capsules may also be stained by the following method and be mounted in balsam without injury. A 5 or 10% solution of gentian violet or fuchsin (500 saturated alcoholic solution of gentian violet and 95 cc. distilled water) is used. This is placed on a dried and fixed cover-glass preparation and gently heated until steam arises. The dye is washed off with a 20% solution of copper sulphate (CuSO<sub>4</sub> cryst.). By these methods most streptococci were found to have capsules.

A FORM OF NECROSIS INVOLVING UNSTRIPED MUSCLE AND ASSOCIATED WITH A NOTABLE ALTERATION IN THE PERICELLULAR ELASTICA.

DR. W. M. L. COPLIN of Philadelphia read this paper by title, and showed lantern slides.

#### SECOND DAY.

THE BACTERIAL ETIOLOGY OF GALLSTONES — AN EXPERIMENTAL STUDY.

DR. A. J. LARTIGAU of New York said the preliminary part of the paper was directed mainly to the consideration of the studies of Mignot, who established the fact by experiment that gallstones could be experimentally induced in animals by infecting the gall bladder. The first step in the writer's investigations was the study of the growth of bacteria in bile. His conclusions are in accordance with those of others who have investigated the matter, that bile is not bactericidal to the bacillus typhosus, bacillus coli communis, and some of the other pyogenic organisms. Direct inoculations of the gall bladder with different bacteria was followed by the development of gallstones. Sterile inert foreign bodies in themselves do not give rise to this condition, although they and the stagnation of bile seem to favor the development of gallstones in the presence of infection of the gall bladder. Mixed infections do not seem to induce gallstones earlier than single ones. From his studies the writer concludes that gall bladder infection may occur in cases of systemic infection, but he believes that in the human subject the bacteria usually gain access to the liver and gall bladder from the intestine through the portal circulation. This is especially so when intestinal inflammation is present.

ON THE PATHOLOGY OF SO-CALLED BONE-ANEURISMS, WITH THE REPORT OF A CASE.

DR. HARVEY R. GAYLORD of Buffalo read this paper by title.

<sup>2</sup> See page 456 of the Journal.

THE CHANGES PRODUCED IN THE HEMOLYMPH GLANDS OF THE SHEEP BY SPLENECTOMY, HEMOLYTIC POISONS AND HEMORRHAGE, WITH A MICROSCOPIC DEMONSTRATION.

DR. A. S. WARTHIN of Ann Arbor spoke on this subject. Since the structure of the hemolymph glands in man resembles that of the spleen, and, further, because these nodes have a function in hemolysis, it seems probable that under certain conditions these nodes may compensate for the spleen. The present research was undertaken primarily to solve this problem, no experimental work with the hemolymph nodes having been previously made. The sheep was chosen because of the large size and number of hemolymph nodes in this animal. Total extirpation of the spleen was made, and the animals killed at intervals of one, three and five days, two weeks, one month, two and five months after the operation. The changes found may be briefly summed up as follows: During the first five days the hemolymph nodes show great congestion, increased destruction of red corpuscles, vacuolization of the lymph follicles, reduced numbers of lymphocytes and mast-cells. By the end of second week hypoplasia of the lymphoid tissue, both of the hemolymph nodes and of the lymphatic glands, has begun, affecting first the follicles, which are apparently increased in number and actually in size. Great numbers of pigment-containing phagocytes in blood and lymph sinuses; increase of eosinophiles, numerous mitotic figures. By the end of the second month the hemolymph nodes in certain regions are replaced by ordinary lymphatic glands, which are deeply pigmented, and there is a new formation of hemolymph nodes in unusual locations. These changes increase in degree and extent until the end of the fifth month, at which period the experiments ceased.

Conclusions: (1) No evidence that there is a formation of red blood cells in hemolymph nodes or lymphatic glands after splenectomy; (2) the earliest changes observed after splenectomy are in the hemolymph glands; (3) the latter become changed into hyperplastic structures resembling ordinary lymph glands, but heavily pigmented; (4) new hemolymph nodes are formed in subperitoneal tissue and in regions where normally they do not occur; (5) no new formation of spleen tissue was observed; (6) the new formation of spleen tissue observed by Tizzoni, the hemorrhagic lymph glands of Winogradow, and the hemorrhagic telangiectic lymphomata of Mosler are newly formed hemolymph nodes; (7) total extirpation of the spleen causes an increased hemolysis in the first five months after splenectomy; this takes place first in the blood sinuses of the hemolymph nodes and later in the lymphatic glands; (8) the increased hemolysis may possibly be explained by the presence of a hemolytic substance in the blood which it is the spleen's function to remove; (9) the spleen is compensated for by the hemolymph nodes and lymphatic glands.

EXPERIMENTS IN TUMOR TRANSPLANTATION AND INOCULATION.

DR. MAXIMILIAN HERZOG of Chicago read this paper by title.

FURTHER INVESTIGATIONS INTO THE TRANSPLANTATION OF TUMORS.

The results of a second series of consecutive transplantations of the sarcomatous part of a mixed tumor of the thyroid (adenocarcinoma-sarcoma) were reported by DR. LEO LOEB of Chicago. The characters of the tumor cells were preserved in all details. Experiments were reported in which pieces of the tumor were kept on ice for variable periods. After having been kept in ice for five days, such pieces still produced tumors. These experiments prove that the tumor-producing agency is still alive at this time. Without having isolated the tumor-producing agency, by this means we may gain a knowledge of its character in a way similar to that in which ferments have been studied. Transplantation of an adenoma of the mammary gland showed a difference in the result of transplantation according to the animal into which it was transplanted. Mast-cells can be transplanted and remain alive in successfully transplanted pieces of tumor. Where the piece of tumor becomes necrotic, the mast-cell granules increase considerably and afterwards the mast-cells degenerate.

ON THROMBI COMPOSED OF AGGLUTINATED RED BLOOD CORPUSCLES.

DR. SIMON FLEXNER of Philadelphia said that his attention had been brought to this subject recently by an observation which he made on the intestine of a case of typhoid fever, in which the veins of the submucosa contained thrombi clearly composed of agglutinated corpuscles. The corpuscles in undergoing agglutination altered in staining properties, becoming hyaline, so that after coalescence the strands and cords produced presented a hyaline appearance. He felt sure that similar thrombi had been observed before, but had been interpreted as being composed of hyaline fibrin, etc. He extended his study to a variety of other infectious processes of human beings, in many of which similar thrombi could be demonstrated. Experiments were also conducted for the purpose of discovering whether similar thrombi could be artificially produced. For this purpose injections of ricin into the circulation of rabbits were employed, and similar agglutinated masses of red cells were found in many parts of the body. The injection of ether into the circulation of rabbits, as is well known, is followed by death in a very short time. Immediate examination shows the right side of the heart and pulmonary vessels to be plugged with soft clots. These clots were found not to consist of coagula, but of closely massed red corpuscles. The bacterial agglutinations were also studied, and the conclusion seems admissible that two kinds of agglutination of red corpuscles may be



met with: (1) That produced by biologic agents, and (2) by chemical agents, corresponding with the two kinds of hemolysis, which are also distinguished into biologic and chemical.

#### THE LYMPHOMATOUS TUMORS OF THE DOG'S SPLEEN.

DR. HERBERT U. WILLIAMS and DR. F. C. BUSCH of Buffalo said that although primary tumors of the spleen are rare in man, this is not the case in the dog and some other domestic animals. The paper was based on autopsies on 720 healthy dogs. In 17 cases, or about 2½%, tumor-like nodules of the spleen were present. The tumors were either single or multiple, and sometimes were as much as 4 cm. in diameter. Histologically they consisted of lymphoid masses larger than Malpighian bodies, with more or less atypical spleen pulp. Trabeculae were not present in the tumors, and the lymphoid masses were usually devoid of central arteries. Metastases were not observed. Examination for bacteria gave negative results. In some respects these tumors resembled subcapsular hemorrhages of the spleen. Attempts to produce them by laceration of the spleen gave negative results.

#### ON THE RELATION OF THE BONE MARROW TO LEUCOCYTOSIS.

DR. W. R. BRINCKERHOFF and MR. E. E. TYZZER of Boston reported experiments. Large numbers of leucocytes were withdrawn from the circulation in rabbits by a transient aseptic peritonitis produced by the intraperitoneal injection of water and turpentine or of hot sterile salt solution. In the circulating blood there might be a slight drop at first in the numbers of leucocytes; finally, in every case, they were increased in number. At autopsy the peritoneum proved sterile in every case, with a great increase in the number of leucocytes. On an examination of the bone marrow it was found that many leucocytes had been withdrawn from the marrow into the circulation, there not being more than one-half the normal number in the marrow of the experimental rabbits. The loss of leucocytes in the general circulation is made up very promptly from the sinuses of the red bone marrow, the adult leucocytes in this place being in close relation with, but not in, the circulation.

#### THE DIFFERENTIATION OF HUMAN FROM ANIMAL BLOOD.

DR. ALFRED STENGEL and DR. C. Y. WHITE of Philadelphia read this paper by title.

#### A STUDY OF SEGMENTATION AND FRAGMENTATION OF THE MYOCARDIUM.

DR. LUDWIG HEKTOEN gave his place on the program to DR. A. P. OHLMACHER of Chicago, who read a paper giving the results of work done under Dr. Hektoen's direction — some "preliminary observation on certain mechanical microtechnical factors concerned in producing segmentation and fragmentation of the myocardium," by Walter H. Buhlig, B.S., of Chicago. The purpose of this

paper was to show that the microscopic appearances, commonly designated fragmentation and segmentation of the heart muscle, were artificial factors, the microscopic imperfections of the microtome knife edge and the direction of cutting the sections being the most important. By varying the conditions calling these two factors into play, the author had reproduced in the heart of a healthy dog practically all the pictures usually regarded as disunion of the myocardium, from apparently intact heart muscle to extreme segmentation and fragmentation. The necessity of reviewing all the work in this subject along the lines here indicated was pointed out.

DR. L. HEKTOEN, presenting the substance of his paper in the form of remarks on the above, said: The fact that human fragmentation and segmentation are of such common occurrence in all sorts of conditions; the fact that it did not seem to be possible to produce these lesions experimentally; and the further fact that no changes of a reactive character about the fragments and segments were ever observed, led to the very reasonable conclusion that myocardial disunion was of intravital occurrence, most likely of agonal development, probably due to irregular contractions of the heart. The fact that fragmentation and segmentation are associated very generally with a distinct degeneration of the muscle fibres, — the sarcolytic degeneration, — led J. B. MacCallum to lay special stress upon the probable rôle of this degeneration in the production of disunion for mechanical reasons. Years ago Zenker expressed the idea that although actual fragmentation and segmentation may be of agonal and mechanical origin, yet this may depend upon changes in the muscle fibres of physical and chemical nature, which may be more marked in some diseases than in others. Based upon considerations of this kind, certain experiments were made especially with dilute solutions of electrolytes: NaCl, KCl, etc., which were injected into the hearts of living dogs, and also after death. Other substances, such as redistilled water, the juice of human hearts, etc., were also injected. Dilute solutions of KCl and water injected during life make the cement lines distinct, and produce the appearance in the muscle fibres that resemble very much the sarcolytic degeneration in human hearts, probably due to osmotic disturbances and absorption of water. It was soon found that the ordinary breaking of the fibres — fragmentation — observed in the specimens probably was the result of the action of the microtome knife, because it was so marked in the sections cut with the microtome knife at right angles to the long diameter of the fibres, but largely absent in the fibres cut in the reverse direction. More or less typical fragmentation is readily obtained in Zenker-fixed, paraffin-embedded pieces of dogs' hearts cut with the knife at right angles to the long course of the fibres, as pointed out by Ohlmacher. Fairly typical segmentation was observed in slight degree, mostly in heart muscle injected during life with N<sub>8</sub> to N<sub>40</sub> KCl solutions. It seems probable that

K ions may induce changes in the cement substance, and that the sarcolytic degeneration of muscle fibres may be the result of osmotic disturbances.

**MULTIPLE ANEMIC INFARCTIONS OF THE LIVER WITH MICROSCOPIC DEMONSTRATIONS.**

Dr. F. A. BALDWIN of Ann Arbor read this paper by title.

**THE INFLUENCE OF THE SPLEEN IN HEMOLYSIS.**

Dr. ISAAC LEVIN of New York read this paper by title.

**THE OCCURRENCE OF TUBERCULOSIS AND CARCINOMA IN THE SAME ORGAN OR TISSUE.**

Dr. HARRIS MOAK of Albany read this paper by invitation. Five cases of the combination of these two diseases were reported. They coexisted in different organs in the body. Sometimes only one organ was affected, and at other times many organs were involved with metastases of both diseases. The tuberculous process was evidently primary in some instances, and at other times the carcinomatous process was without doubt primary, still, at other times they probably were both metastatic at the same time and in the same way. Tubercle bacilli were demonstrated in nearly every instance. To explain the rarity of the combination of these two common diseases it was shown that tuberculosis was distinctly an active disease before the age of fifty, and that carcinoma was most prevalent after that age. Further, that the organs or tissues most liable to tuberculosis were not those most liable to carcinoma. The relation of healed or latent tuberculosis was considered, and from figures quoted it was shown that this form of tuberculosis must frequently exist in some part of the body of cancer patients. The conclusion was that there is no real antagonism between these two diseases.

**PRIMARY BILATERAL MYXOSARCOMA OF THE SCIATIC NERVES WITH METASTASES.**

Dr. J. H. LARKIN of New York read a paper on the above subject and showed photographs of the nerves, presenting numerous larger and smaller fusiform swellings.

**NEW AND SIMPLE MEDIA FOR THE DIFFERENTIATION OF THE COLONIES OF THE TYPHOID, COLON AND ALLIED BACILLI.**

Dr. PHILIP H. HISS made a preliminary report on investigations with media of the same general character as that proposed by the author in earlier communications, but presenting fewer difficulties in its preparation. He showed photographs of cultures in his older medium and of similar cultures in the new media, in which the differences between the typhoid and colon colonies, as shown in the former, seemed to be preserved in the latter.

**THE INFLUENCE OF POTASSIUM CYANIDE IN LIVING PROTOPLASM, WITH SPECIAL REFERENCE TO BACTERIA.**

Dr. F. P. GORMAN and Dr. R. W. TOWER of Providence, R. I., called attention to the neglect to investigate the influence of bacteria by Loeb in his investigations on the influence of potassium cyanide on the life of unfertilized sea-urchin eggs. They find that sea water is teeming with bacteria, and that short of a strength of solution to kill the eggs themselves the per cent. of potassium cyanide recommended by Loeb as the one in which the eggs would live for the longest time is that which inhibits to the greatest extent the growth of bacteria.

**THE PERSISTENCE OF VARIETIES OF THE BACILLUS OF DIPHTHERIA AND OF DIPHTHERIA-LIKE BACILLI.**

Dr. WILLIAM H. PARK of New York (for Anna W. Williams) read this paper, based on a very large amount of work done in connection with cases from a hospital for contagious diseases, from a town during an extensive epidemic of diphtheria, from a home for destitute children, and from miscellaneous sources. Smears and pure cultures grown on various media and under varying conditions were studied, also the effect of inoculation in guinea pigs, white rats and goldfinches, and in symbiosis with other bacilli. In a series of cases of clinically typical diphtheria only one variety of virulent diphtheria bacillus was obtained from each throat; pseudo varieties were found no more frequently at the end than at the beginning of the disease. In normal throats different varieties of diphtheria-like bacilli may be found in the same throat. These may be found in institutions without cases of diphtheria resulting. In pure culture the diphtheria-like bacilli retain their characteristics indefinitely. In cases of diphtheria apparently contracted from the same source the same variety of virulent bacillus was found in each case, and these remained the only variety throughout; no gradations to pseudo types were found. In a study of pure cultures, grown under various conditions, the characteristics of the original culture was found to be preserved, the duration of life of the cultures under artificial conditions varying from one to seven years. The conclusion drawn from these studies is that morphologically the typical diphtheria bacillus is a distinct species from the atypical diphtheria-like bacillus and the so-called pseudo forms.

**SPINDLE-SHAPED DILATATION OF THE URETER IN THE FETUS.**

Dr. CARL A. HAMANN of Cleveland states that, as a result of the examination of the ureters in thirty-seven fetuses of various ages it was found, in the vast majority of instances, the ureters present a spindle-shaped enlargement just above the pelvic brim. This enlargement varies in length from  $1\frac{1}{2}$  to 3 cm., and the diameter of the ureter here is from one and one-half to two times as great as the rest of the tube. Tortuosities and spiral turns are frequently encountered.

## THE LIFE HISTORY OF ACTINOMYCES ASTEROIDES.

DR. W. G. MACCALLUM of Baltimore reported a child in whom a gastric fistula had been produced for the relief of an esophageal stricture. There developed about three weeks after the operation a general peritonitis of a peculiar type. At the autopsy the abdominal viscera were bound together by adhesions containing abscesses, in which the branched filaments occurred in pure culture. They stain by Gram, show no spores, grow readily in the air on all media, but do not grow anaerobically; on potato elevated free hyphae terminated by chains of conidia give a chalky bloom to the growth; on other media the reddish yellow growth is fairly firm and moist. The organism is killed in five minutes by a temperature of 68° C. The conidia are not more resistant. Rabbits, guinea pigs, dogs, etc., are susceptible to inoculation, abscesses being formed in enormous numbers throughout the tissues. With the attraction of leucocytes there is a necrotic process finally followed by a new growth of connective tissue which finally forms a capsule for each abscess. In the abscesses in the kidneys of rabbits there were found, after the abscess had existed for a time, "Drusen" comparable to the sulphur bodies of the *Actomyces bovis*, but long, cylindrical and contorted, instead of being rounded. From one end projected the loose filaments of the organism, while from the other, or blind end, as well as from the sides of the cylinder, hung club-like structures made up of the swellings of the ends of the filaments. In the centre of many of the cylinders was a crystal of calcium carbonate.

## ON VACCINE BODIES IN VARIOLA.

DR. JAMES EWING of New York presented this paper.

## ON THE ANEMIA AND OTHER EFFECTS PRODUCED BY REPEATED DOSES OF BACILLUS COLI CULTURES OF LOW VIRULENCE (PRELIMINARY).

DR. GEORGE A. CHARLTON of Montreal spoke on this subject. In these experiments pure cultures of the colon bacillus, isolated from the cecum of a rabbit, were used. Injections of broth cultures twenty-four hours old were made in the ear vein of adult rabbits. Anemia and progressive nerve changes were produced. The changes in the blood are: (1) Marked decrease in number of red blood corpuscles; (2) decrease in percentage of hemoglobin to 15% of normal; (3) slight leucocytosis, increase of 75% of normal; (4) poikilocytosis; (5) appearance of nucleated red cells, microcytes and macrocytes. The nerve changes affected the lower lumbar neurones, gradually progressing upward, and resulted in a complete paresis. A suspension of inoculation during two weeks resulted in considerable increase in red blood corpuscles, disappearance of nucleated reds, and marked improvement in nervous symptoms, only to rapidly relapse again when inoculations were resumed. Autopsies show in the cells of the liver and kidneys deposits of iron and pigment, no fibrosis. Spleen shrunken and of ashen

gray color. Intestines free from ulcerations or other evidence of inflammation. Other organs normal. The same form of bacillus as was used in the inoculations was recovered in nearly pure culture from heart blood, bile, urine and liver in all cases. In a few cases the kidneys gave cultures also. Other experiments are being carried on to ascertain the effect of dead cultures, and also of the filtered toxins; the results obtained so far are modifications of those obtained with the pure culture.

## ON THE GROWTH OF EPITHELIUM IN AGAR AND BLOOD SERUM IN THE LIVING BODY, WITH MICROSCOPIC DEMONSTRATIONS.

DR. LEO LOEB of Chicago showed that epithelium transplanted into blood serum can grow. Without developing a carcinoma it can reproduce epithelial structures found in carcinoma: (1) Epithelial pearls form around pieces of blood serum; (2) certain structures are reproduced formerly taken to be parasites; (3) cell-inclusions are found, the epithelium including pieces of blood serum of various sizes. These experiments may help to differentiate degenerative changes found in carcinoma from structures, which may be caused by foreign bodies.

## Recent Literature.

*A Reference Handbook of the Medical Sciences.*

Embracing the Entire Range of Scientific and Practical Medicine and Allied Science. By various writers. Edited by ALBERT H. BUCK, M.D. New York: William Wood & Co. 1902.

This volume is the fourth of the new edition of this admirable reference handbook, and with it the set is half published. As we have done before, we again congratulate both the editor and the contributors for the very great care taken not only in the writing, but also in the manner of the publication of the articles. There is apparently no limit set to the number of illustrations, which, with modern methods of accurate reproduction, are always of the greatest value to readers. The illustrations are almost without exception satisfactorily reproduced, and special plate paper is used when necessary to bring out details. A criticism which seems justified is the attempt to reproduce x-ray photographs on ordinary paper. This is never a success, as shown, for example, in Dr. LaGarde's article on gunshot wounds. In general, the volume completely maintains the standard already set by the earlier ones, and we have no doubt that those which are to succeed will prove equally satisfactory.

SMALLPOX in the United States, as officially reported from Dec. 28, 1901, to April 18, 1902, amounts to 29,304 cases, with 850 deaths. The total for the corresponding period in 1901 was 16,734 cases, with 225 deaths.—*American Medicine.*

THE BOSTON  
**Medical and Surgical Journal.**

THURSDAY, MAY 1, 1902.

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A COURSE IN SCIENCE PREPARATORY TO  
THE STUDY OF MEDICINE.

HARVARD University has recently taken definite steps to provide a systematic course of instruction for students intending to undertake the study of medicine. To this end a pamphlet has been published under the auspices of the Lawrence Scientific School, outlining a programme of studies, wide in scope, and yet all directed toward the preparation for later medical work. The title given this announcement is "Anatomy and Physiology, A Course in Science Preparatory to the Study of Medicine," and its aims are expressed as follows: "Only those branches of science which are recommended by the Medical Faculty of Harvard University are prescribed, together with two years of instruction in modern languages. Students who desire some work in literature, history, mathematics or arts may elect a course each year in any of those subjects. Students who have satisfactorily completed the required work of the first three years of this programme will be admitted to the Harvard Medical School on leave of absence from the Scientific School. The first year in the Medical School will be counted as the fourth year of this programme. The degree of Bachelor of Science in anatomy and physiology will be conferred on students who have completed this course of study and who have satisfactorily passed the prescribed examinations."

The first year is to be taken up with zoölogy, botany, physics, descriptive inorganic chemistry, rhetoric and English composition, German or French. The second year includes plant and animal morphology, advanced physics, chemistry, with English composition and German or French. In the third year, elementary physiology and hygiene and laboratory work in the comparative anatomy of vertebrates are taken up, along with a course in geology and one in logic and psychol-

ogy. During these three years three and a half courses of elective study are allowed. The fourth year of the course, taken at the Harvard Medical School, includes the studies usually taken up in the first year of medical work. The requirements for admission are the same as to other departments of the Lawrence Scientific School.

The course above outlined must commend itself to everyone who looks toward the elevation of the standard of preparation of students about to take up the study of medicine. The arrangement of studies has evidently been carefully planned to meet the general demand for preliminary biological and general laboratory training. We regret that more attention has not been paid to the general field of philosophy and psychology, which together are allowed but one prescribed course. It requires no very distant vision to see that one of the great fields of research in medicine in the near future will lie in the domain of mental disease and allied conditions. We need to begin at once to train men for this difficult work in lines which go beyond the ordinarily accepted bounds of biological and physical science.

REPORT OF THE MASSACHUSETTS BOARD  
OF REGISTRATION IN MEDICINE.

THE eighth annual report of this board is before us. Under many difficulties and with pressure brought to bear from various sources, it has consistently maintained a high standard, and continued to reject unworthy and improperly prepared candidates. This is as it should be; if such a board of registration have any significance, it lies in the fact that it offers a certain bar to the indiscriminate demand constantly being made for permission to practise medicine in this State. There should be absolutely no relaxation of vigilance in this regard, whatever the demands of unscrupulous and designing persons may be for a lowering of the standard. So far as we have been able to judge, the examinations set are comprehensive and fair, and should be passed by an ordinarily intelligent and well-trained man. That a goodly number fail each year is no reflection on the work of the Board of Registration.

The number of persons who applied for registration in 1901 was 342, of whom 303 passed satisfactorily. One hundred and one applicants of the rejected list of this and previous years were re-examined, of whom 35 have been registered. A comparison of the figures shows that 152 applicants graduated from medical schools within the State, of whom 67 failed to secure registration; of 150 graduating from other schools, 16% failed. It is of interest to note that in spite of the fact

that the rigidity of the examination is greater than three years ago, yet the whole number of rejected candidates was less, showing a rising standard of medical education in the schools of New England, from which, naturally, the candidates chiefly come.

The work of registration by written examinations began with the year 1895. Since then the board has given 3,390 individual examinations and has issued 2,636 certificates, an annual average of 376. Seven hundred and fifty-four unsatisfactory examinations have been held, being an annual average of 109. As a result, the number of registered physicians now in practice in Massachusetts is approximately 4,500, or an average of one to every 625 inhabitants.

This last statement is sufficiently appalling to lead us to express the sanguine hope that the Board of Registration will maintain and, if possible, continue to increase the requirements demanded of a registered physician. Such action is not only a boon to the community, but also to those men who are seeking to fill positions for which they are intellectually incompetent.

#### ORGANIZED CANCER RESEARCH.

ENGLAND has finally taken systematic steps to join in the work of research on the etiology of cancer, which has now for several years been one of the main objects of scientific investigation in many parts of the world. A scheme of organized research on cancer was formerly adopted by the Royal College of Physicians of London on March 24, and later received the approval of the Royal College of Surgeons of England. It was voted that steps be taken to provide, equip and maintain laboratories exclusively for cancer research; to encourage investigation in British dominions outside of England; to assist in the development of cancer research departments in various hospitals; and finally to provide means for systematic investigation in other directions into the causes, prevention and treatment of the disease. The scheme further provides that, if the object of the fund which has been raised be attained by the discovery of the nature and cause of cancer, the money shall be further utilized either for equipping certain hospitals for the treatment of cancer or for further research into other diseases.

A somewhat elaborate plan for officers, executive committee, general committee and working and consulting staff has also been suggested, the details of which may be found in the *British Medical Journal* for April 12. So encouraging has been the appeal for funds to carry on this work that the *British Medical Journal* entertains no further doubt that ample provision will

be made in the near future for the investigations above outlined.

Attention is also drawn to the fact that the want of co-operation among various investigators on this important subject has led to a great loss of power. It is hoped, therefore, that by giving the largest possible scope to investigations, and by including any line that offers even a small possibility of addition to our general knowledge, definite conclusions, both of positive and negative character, may soon be reached. As a further means to this end the British scheme includes a provision for the establishment of a system of intercommunication of workers in various countries. The hope is expressed that observations wherever made will regularly be communicated to other workers in the same field. At the present time, for example, a collective investigation on cancer is being made under the direction of Professor von Leyden of Berlin. Dr. Roswell Park of Buffalo has recently made an effort to organize an international commission in America, and much excellent work is being done in Boston and at other centres of medical investigation.

It rarely happens that any one subject excites such a wide-spread interest as this investigation into cancer has apparently done. For this reason, if for no other, it is certainly altogether desirable, as the *British Medical Journal* suggests, that no unnecessary work be done, and that what work is accomplished of positive value should at once become the property of all other workers in the same field. Theoretically such a plan is altogether to be commended. How it may practically work to a conclusion it is naturally impossible to say, but we are confident that a spirit of co-operation in such a matter is altogether to be encouraged.

#### MEDICAL NOTES.

**NURSES' MOVEMENT FOR REGISTRATION IN NEW YORK STATE.**—The New York State Nurses' Association completed its organization at a meeting held in Albany on April 15, electing officers, trustees and committees. The society is now ready to consider the question of legislation for registration, which will ultimately place training schools for nurses under the supervision of the regents, establishing thereby a more uniform basis of nursing education in the State, and eventually making trained nursing a recognized profession.

**CHOLERA IN THE PHILIPPINES.**—It is reported from Manila that the situation as regards cholera is not improving. Some cases are reported among the American soldiers in the Camarines provinces of southern Luzon and elsewhere, but up to this

time few Americans have been attacked. In Manila there have been 555 cases and 449 deaths, while the provinces report 1,599 cases and 1,169 deaths, according to a despatch dated April 28.

**FIRST EGYPTIAN MEDICAL CONGRESS.**—This congress will be held from Dec. 19 to Dec. 23, 1902, at Cairo, under the patronage of the Khédive. Various reductions in steamship fares and other expenses are promised. Dr. William Osler has assumed the presidency of the American National Committee.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, April 30, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 28, scarlatina 19, measles 163, typhoid fever 13, smallpox 39.

**RECOMMENDATIONS OF BOSTON INSANE HOSPITAL TRUSTEES.**—In their recently published annual report the trustees of the Boston Insane Hospital make the following statement: "After careful consideration the trustees have decided that the most urgent need of the hospital is a suitable provision for the proper classification and care of cases of insanity that are curable. They believe that in caring for curable cases of insanity no means or expense should be spared to secure recoveries and that the percentage of recoveries is of more importance than the cost per patient. The care that a patient first receives oftentimes decides the question of his recovery. The importance of this matter is made evident by statistics which show that the average duration of life of the chronic insane is from fifteen to twenty years and that the expense to the community for maintenance for a pauper insane person during his lifetime is three or four thousand dollars. Accordingly the trustees are having plans prepared for buildings suitable for the care of acute and curable cases of insanity. Plans have been drawn for an observation building, in which all cases that require special watching can be placed. This building will provide for thirty-two patients. Plans have also been drawn for a building to accommodate twenty excited patients."

**BOSTON HEALTH STATISTICS.**—The number of deaths reported to the Board of Health for the week ending April 26 was 207, as against 246 the corresponding week last year, showing a decrease of 39 deaths, and making the death-rate for the week 18.8. The number of cases and deaths from infectious diseases is as follows: Diphtheria 46 cases, 4 deaths; scarlatina 10 cases, 1 death; typhoid fever 8 cases, 1 death; measles 134 cases, 8 deaths; tuberculosis 14 cases, 25

deaths; smallpox 51 cases, 8 deaths. The deaths from pneumonia were 27; whooping cough, 2; heart disease, 18; bronchitis, 6; marasmus, 1. There were 12 deaths from violent causes. The number of children who died under 1 year was 33; under 5 years, 49; persons more than 60 years, 46; deaths in public institutions, 66.

**LEGALITY OF COMPULSORY VACCINATION.**—In the Superior Criminal Court recently, a resident of East Boston was found guilty of refusing to allow the Board of Health to vaccinate his infant and also for refusing to submit to vaccination himself, basing his contention on the ground that vaccination is useless as a preventive of smallpox and is a peril to health. He further contended that the compulsory vaccination law is unconstitutional. The presiding judge, Sheldon, declined to so rule, and it is said the question of the constitutionality of the statute will go to the Supreme Court for its decision.

**SMALLPOX IN MALDEN, MASS.**—Six new cases of smallpox have recently developed in Malden, all traced to a single person. The cases are of a mild form.

#### NEW YORK.

**ENDORSEMENT OF WORK OF HEALTH DEPARTMENT IN THE PRODUCTION OF ANTITOXINS AND VACCINE VIRUS.**—At a meeting held April 21 the New York County Branch of the New York State Medical Association endorsed the work done by the Health Department in producing for sale or free distribution antitoxins and vaccine virus. The president of the Board of Health has sent to Mayor Low a report of the production, sale and free distribution by the department during the past three years. This report was prepared in answer to the remarks made by Barton S. Weeks, representing a number of drug trade journals, at a meeting in the mayor's office on April 17. He also presented to the mayor a petition signed by 1,100 physicians protesting against the production of antitoxin and virus by the Health Department. In the report Commissioner Lederle showed that the value of these produced by the department was \$67,414 in 1899, \$101,230 in 1900, and \$116,167 in 1901. In 1899 the amount distributed free was two and a half times greater than the amount sold; in 1900 a little over twice as great, and in 1901 one and a half times as great.

**ACTION AGAINST METROPOLITAN LIFE INSURANCE COMPANY.**—In an action in the Municipal Court, brought by Ellen Trudden, as administratrix, against the Metropolitan Life Insurance Company, to recover upon a policy on the life of George Hayes, the defense was that Hayes had falsely stated in the application for insurance that he had never had kidney disease, and had



not been attended by a physician for two years previously. A physician, however, testified that for a year before Hayes was insured he had treated him for disease of the kidneys. This testimony was uncontradicted and unimpeached, and the Second Appellate Division of the New York Supreme Court has now decided, on appeal, that it should not have been submitted to the jury. In his opinion the presiding justice says that the facts stated should have been treated as established, and quotes the following language from another Appellate Division case: "It has often been held that the credibility of the uncontradicted testimony of a party is a question for the jury. So is the credibility of every witness, interested or disinterested; but a jury is not at liberty to disregard the evidence of any witness who is in nowise impeached, and whose testimony is such that its truth is highly probable."

**LEGAL PROHIBITION OF UNPROFESSIONAL MENTAL HEALING.**—At a meeting of the Society of Medical Jurisprudence held April 14 C. M. Demond of the New York bar read a paper on "Legal Prohibition of Unprofessional Mental Healing," which was followed by an interesting discussion. The exploiters of the delusion of Christian Science, he said, take little pains to conceal their eagerness for easily acquired money. The sufferings of the poor, whether real or imaginary, do not interest them in the slightest. He advocated an amendment to the present law, prohibiting medical attendance by anyone not a physician. At the conclusion of the discussion a committee was appointed to draw up a bill in accordance with the views expressed, for presentation at the next session of the legislature.

**MEETING OF MEDICAL ASSOCIATION OF GREATER CITY OF NEW YORK.**—At the meeting of the Medical Association of the Greater City of New York on April 14 Dr. Edward Fridenberg presented a patient cured of a high degree of myopia by an operation for the artificial production of a cataract, followed by the removal of the latter. The result in this case was eminently satisfactory. The patient, who was unable to wear glasses, had been obliged to give up his occupation, that of a bookbinder, on account of his extreme myopia, and now has an excellent degree of vision. At the same meeting Dr. Robert F. Weir, ex-president of the society, who has recently returned from an extended tour in the East, presented to the association a gavel handsomely mounted in silver. It was, he said, made in Manila, where the natives do very excellent work in wood carving.

**APPOINTMENT OF DR. H. M. BIGGS.**—At a meeting of the Board of Health held April 16 Dr.

H. M. Biggs, director of the bacteriological laboratory of the department, was appointed medical officer of the board, at a salary of \$5,000 per annum. The position of medical officer is a new one, created by the present municipal administration, and certainly no more admirable appointment to it could have been made than that of Dr. Biggs. It seems extraordinary, however, that Mayor Low, when he had the opportunity, did not select for president of the health department some such specially qualified physician as Dr. Biggs, instead of a layman. In that case there would have been no occasion for making this new office, and the city would have been saved the expense of paying a superfluous salary of considerable size.

**REPORT OF NEW YORK STATE HOSPITAL FOR CRIPPLED AND DEFORMED CHILDREN.**—The first report has just been issued of the New York State Hospital for the Care of Crippled and Deformed Children, situated at Tarrytown on the Hudson, of which Dr. Newton M. Shaffer of New York is surgeon-in-chief. It embraces a period of ten months, during which there were sixty-two applicants for admission; but Dr. Shaffer thinks there is every indication that before many years, as the work of the hospital becomes better known and appreciated among the poor, it will be called upon to provide for 500 patients. He calls attention to the remarkable improvement shown in the cases treated over what might have been expected of similar ones in a city hospital, and expresses the opinion that the good work of the institution might be more widely extended if a large tract of land could be provided for it in some such place as the hills of Westchester County. Reports of twenty-four cases are given, in several of which the children were entirely cured.

**HONORARY APPOINTMENTS ON THE BOARD OF HEALTH.**—On April 24 the president of the Board of Health announced the following appointments to honorary offices in the department: Daniel Draper, Ph.D., Consulting Meteorologist; Dr. George H. Fox, Dermatologist; Dr. Clarence C. Rice, Laryngologist; Dr. Arthur B. Deuel, Otolologist; Dr. George F. Shradly, Consulting Surgeon.

### — Miscellany. —

#### THE SIGNIFICANCE OF BLUE PIGMENT SPOTS.

DR. BAELZ, a German physician in Tokio, who has been repeatedly decorated by the Mikado, upon whom he has attended, seems to have made a discovery of great interest in anthropology.

Others before him had noticed the blue spots which Japanese babies have on the lower part of their spine and elsewhere, and which usually disappear before the age of six, but no one before him, so far as is known, had interpreted and set forth this phenomenon as a peculiarity of the yellow race in contradistinction to the white race. In Korean and Chinese children, in Malays and Eskimos, these blue spots have also been found. They are not visible on European children, but the pigment cells have been found microscopically. Dr. Baelz says: "The white, the yellow, and the black man have all the same kind of coloring matter in their skins; the difference is only a matter of degree. In the white the pigment does not show, or hardly shows at all, to the naked eye; in the yellow it is a little more abundant, hence the yellow tint; and the more abundant it is, the darker the skin will look until we reach the negro." In Euro-Japanese children, if the offspring resembles the fair-haired, blue-eyed parent, it has no spots at all; if the influence of the Japanese and the foreign parent is about equal, the spots are there though more or less indistinct. But if the Japanese characteristics prevail generally, the spots are almost as well marked as in a Japanese baby. While apes have the same blue spots, and certain monkeys blue callosities on the buttocks, Japanese children have sometimes one-half of their bodies covered with them. Dr. Baelz believes that the blue spots form a most important racial characteristic, and will not acknowledge that the configuration of the eyelids or of the earlobes is of anything like equal value.—*The Nation*.


## Obituary.

### THEODORE WALSER, M.D.

THEODORE WALSER, M.D., for several years sanitary superintendent of the Borough of Richmond, New York City, died on April 23. He was the oldest practising physician on Staten Island, having located there in 1851. He was born in Gottlieben, Switzerland, April 25, 1825, and was graduated from the Jefferson Medical College, Philadelphia, in 1850. For a time he was assistant physician at the Institutions on Ward's Island and was then appointed deputy health officer of the port of New York. He held that position when the Quarantine Hospital buildings on Staten Island were set on fire by the residents of the neighborhood. For many years he was health officer of the old village of New Brighton, holding that appointment up to the time when Staten Island was incorporated in the city of New York as the Borough of Richmond. Dr. Walser was an authority on contagious diseases. During a smallpox epidemic several years ago he volunteered his services to the State, and in the last outbreak of cholera he did good service, also as a volunteer, at the quarantine hospitals on Hoffman and Swinburn Islands. He was one of the founders of the S. H. Smith Infirmary at New Brighton, the only general hospital on Staten Island, and for many years was an attending physician there. One of his sons is Dr. William C. Walser of Livingston, Staten Island. Dr. Walser has been the third sanitary superintendent of the Borough of Richmond to die within four years while serving in that capacity.

## METEOROLOGICAL RECORD

For the week ending April 19, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer.		Relative humidity.			Direction of wind.		Velocity of wind.		Weather.		Rainfall in inches
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S...13	29.70	48	54	41	64	68	66	W	W	12	18	F.	C.	T.
M...14	29.96	43	51	35	64	68	66	N	N	16	12	C.	O.	
T...15	30.10	47	60	34	50	54	52	N	W	10	8	C.	C.	
W...16	30.06	50	59	41	48	50	49	S	W	9	6	F.	C.	
T...17	29.96	47	52	42	69	54	62	S	E	8	6	C.	C.	
F...18	30.02	47	53	41	75	71	73	S	W	8	5	C.	O.	
S...19	30.08	50	61	40	60	67	64	S	W	10	3	C.	C.	
	29.98		56	39		62								

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall.  
☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 19, 1902.

CITIES.	Population * Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Cerebro spinal meningitis.	
New York . . .	3,665,352	1,345	429	26.17	13.68	3.12	.59	.32	
Chicago . . .	1,852,828	529	143	21.54	17.39	1.32	.75	—	
Philadelphia . . .	1,349,624	463	110	20.52	14.69	1.72	2.16	—	
St. Louis . . .	603,717	—	—	—	—	—	—	—	
Baltimore . . .	525,330	176	58	24.42	18.17	1.70	1.70	—	
Cleveland . . .	411,826	—	—	—	—	—	—	—	
Buffalo . . .	376,742	—	—	—	—	—	—	—	
Pittsburg . . .	341,401	166	67	25.88	22.88	1.20	6.60	.60	
Cincinnati . . .	332,032	—	—	—	—	—	—	—	
Milwaukee . . .	304,975	—	—	—	—	—	—	—	
Washington . . .	289,537	—	—	—	—	—	—	—	
Providence . . .	185,870	73	22	17.81	22.29	2.74	—	—	
Boston . . .	588,736	243	74	25.50	13.57	3.71	1.64	2.05	
Worcester . . .	127,337	41	19	14.63	—	—	—	2.44	
Fall River . . .	111,872	—	—	—	—	—	—	—	
Lowell . . .	99,574	40	14	12.50	15.00	5.00	—	—	
Cambridge . . .	96,334	20	6	35.00	15.00	5.00	—	—	
Lynn . . .	71,144	19	8	15.78	—	5.26	—	5.26	
Lawrence . . .	67,275	19	9	15.78	26.30	—	—	—	
Springfield . . .	66,854	12	4	8.33	8.33	—	—	—	
Somerville . . .	65,882	18	5	27.77	22.22	—	—	5.55	
New Bedford . . .	65,574	21	13	4.76	9.52	—	—	4.76	
Holyoke . . .	48,065	9	3	22.22	11.11	—	—	—	
Brockton . . .	43,208	14	3	28.96	—	14.28	7.14	—	
Haverhill . . .	40,392	14	4	14.28	28.96	—	—	—	
Salem . . .	36,567	10	2	10.00	—	—	—	—	
Newton . . .	36,336	5	3	20.00	—	—	—	—	
Malden . . .	35,390	11	3	9.09	—	—	—	—	
Chelsea . . .	35,264	10	3	—	—	—	—	—	
Fitchburg . . .	33,848	4	2	—	—	—	—	—	
Taunton . . .	32,759	12	1	16.67	25.00	—	—	—	
Everett . . .	27,114	7	3	42.90	—	—	—	—	
North Adams . . .	26,583	7	1	—	16.67	—	—	—	
Gloucester . . .	26,121	—	—	—	—	—	—	—	
Quincy . . .	25,307	6	1	16.67	16.67	—	—	—	
Waltham . . .	24,612	7	2	14.30	—	—	—	—	
Pittsfield . . .	22,311	7	—	—	28.60	—	—	—	
Brookline . . .	21,679	—	—	—	—	—	—	—	
Chicopee . . .	20,390	8	5	—	12.50	—	—	—	
Medford . . .	20,014	—	—	—	—	—	—	—	
Newburyport . . .	14,478	5	—	20.00	—	—	—	—	
Melrose . . .	13,384	7	1	—	—	—	—	—	

\* The populations of the cities outside of Massachusetts were estimated on the basis of the rate of growth from 1890 to 1900. Those of the Massachusetts cities were estimated upon the rate of growth from 1895 to 1900, since the State had an intermediate census in 1895. The populations of Gloucester, Marlborough and Newburyport were allowed to stand as in 1900, they having suffered a slight decrease during the five-year period.

Deaths reported 3,376; under five years of age, 1,032; principal infectious diseases (smallpox, measles, scarlet fever,

cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 779, acute lung diseases 512, consumption 382, scarlet fever 58, erysipelas 18, typhoid fever 42, whooping cough 32, cerebrospinal meningitis 13, smallpox 16, measles 46, diarrheal diseases 86, diphtheria and croup 80.

From whooping cough, New York 10, Chicago 7, Philadelphia 5, Baltimore 3, Pittsburg 4, Worcester, Lowell and Cambridge 1 each. From cerebrospinal meningitis, New York 3, Pittsburg 1, Boston 5, Worcester, Lynn, New Bedford and Somerville 1 each. From scarlet fever, New York 30, Chicago 17, Philadelphia 5, Pittsburg 2, Providence 1, Boston 3. From erysipelas, New York 7, Chicago 6, Philadelphia 1, Boston 3, Somerville 1. From smallpox New York 8, Philadelphia 1, Providence 2, Boston 4, Somerville 1.

Beginning with January, 1902, the term "great towns" as employed in the Registrar General's Weekly Return of births and deaths includes the seventy-five municipalities of England and Wales which have a population of more than 50,000 in each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending April 5, the death-rate was 17.6. Deaths reported 5,010; acute diseases of the respiratory organs (London) 317, whooping cough 128, diphtheria 72, measles 171, smallpox 77, scarlet fever 42.

The death-rate ranged from 9.3 in Bournemouth to 29.2 in Burnley; London 17.9, West Ham 17.0, Croydon 17.0, Brighton 18.4, Portsmouth 15.5, Southampton 19.3, Bristol 17.6, Birmingham 18.0, Leicester 17.8, Nottingham 19.1, Birkenhead 15.3, Liverpool 21.5, Manchester 19.2, Salford 16.3, Bradford 15.7, Leeds 21.5, Sheffield 17.0, Hull 17.8, Newcastle-on-Tyne 21.2, Cardiff 15.1.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING APRIL 5, 1902.

B. R. WARD, passed assistant surgeon. Detached from the Boston Navy Yard, and ordered to the "Lancaster."

R. A. BACHMANN, assistant surgeon. Appointed assistant surgeon from March 20, 1902.

E. V. ARMSTRONG, passed assistant surgeon. Granted sick leave for six months.

C. O'LEARY, pharmacist. Retired from active service, April 25, 1902, having reached the age of sixty-two.

D. N. CARPENTER, passed assistant surgeon. Ordered to Naval Hospital, Newport, R. I., for temporary duty.

W. E. GRIFFIN, assistant surgeon. Detached from Naval Hospital, Newport, R. I., and ordered to accompany a detachment of Marines to the Philippines.

H. C. CURL, assistant surgeon. Ordered to the Naval Hospital, Mare Island, Cal.

M. V. STONE, assistant surgeon. Detached from the Naval Hospital, Mare Island, Cal., and ordered to the "Constellation."

R. A. BACHMANN, assistant surgeon. Ordered to the Naval Academy.

#### OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING APRIL 3, 1902.

STONER, G. W., surgeon. Granted leave of absence for one day. March 29, 1902, under paragraph 179 of the regulations.

CARTER, H. R., surgeon. Granted leave of absence for six days from April 1, 1902, under paragraph 179 of the regulations.

BROOKS, S. D., surgeon. Granted leave of absence for one day. March 31, 1902. March 29, 1902.

#### PROMOTIONS.

Junior Pharmacist Charles G. Carlton, to be senior pharmacist from Jan. 13, 1902.

Junior Pharmacist H. E. Davis, to be senior pharmacist from Feb. 10, 1902.

Junior Pharmacist R. F. Troxler, to be senior pharmacist from March 13, 1902.

Junior Pharmacist J. E. Beck, to be senior pharmacist from March 15, 1902.

#### SOCIETY NOTICES.

AMERICAN ACADEMY OF MEDICINE.—The twenty-seventh annual meeting of the American Academy of Medicine will be held at Saratoga, June 7 to June 9, 1902.

MISSISSIPPI VALLEY MEDICAL ASSOCIATION.—The twenty-eighth annual meeting of the Mississippi Valley Medical Association will be held in Kansas City, Mo., Oct. 15, 16, 17, 1902.

Dr. C. B. Parker, of Cleveland, O., will deliver the address in Surgery and Dr. Hugh T. Patrick of Chicago the address in Medicine.

Titles of papers should be sent to the secretary, Dr. Henry Enos Tuley, 111 W. Kentucky St., Louisville, Ky., at as early a date as possible to obtain a favorable place on the program.

CONGRESS OF NATURAL PHILOSOPHERS AND PHYSICIANS.—Between Sept. 21 and Sept. 28, 1902, the Association of Natural Philosophers and Physicians will hold its seventy-fourth annual congress at Carlsbad, Austria. As on former occasions lectures and debates may be carried on in any language of the world.

ASSOCIATION OF AMERICAN MEDICAL COLLEGES.—The next meeting of the Association of American Medical Colleges will be held at such place as the local committee may designate in Saratoga, Monday, June 9, at 10 A.M., under the presidency of Dr. Victor C. Vaughan.

SCHOOL OF INSTRUCTION FOR HEALTH OFFICERS.—The State of New Hampshire School of Instruction for Health Officers and Sanitary Conference, under the auspices of the State Board of Health and the New Hampshire Association of Boards of Health, will be held at the State House, at Concord, on Tuesday, Wednesday and Thursday, April 29, 30 and May 1, 1902.

#### RECENT DEATH.

DR. GEORGE E. HARRISON of Springfield, Long Island, died in St. Luke's Hospital, New York, on April 24, of cardiac disease. He was forty-four years of age, and a native of Cleveland, O. In 1873 he became a cadet at the U. S. Naval Academy at Annapolis from the Second Congressional District of Michigan. At the end of his third year at the academy he left in order to study medicine, and was graduated in Chicago.

#### BOOKS AND PAMPHLETS RECEIVED.

Traumatic Arterio-Venous Aneurysms of the Subclavian Vessels. By Rudolph Matas, M.D., New Orleans. Reprint. 1902.

Massive Infiltration Anesthesia with Weak Analgesic Solutions (Modified Schleich Method.) By Rudolph Matas, M.D. Illustrated. Reprint. 1901.

Fifth Annual Report of the Trustees of the Boston Insane Hospital for the Year Ending January 31, 1902. Illustrated. Boston: Municipal Printing Office. 1902.

The Treatment of Abdominal Aortic Aneurism by Wiring and Electrolysis. A Critical Study of the Method Based upon the Latest Clinical Data. By Rudolph Matas, M.D., Professor of Surgery, Medical Department, Tulane University, of Louisiana; Visiting Surgeon to the Charity Hospital of New Orleans, etc. Reprint. 1900.

Clinical Contributions: I. Papillo-Retinitis due to Chlorosis: II. Two Cases in which Eye Strain was Relieved by Vertical Decentration of Lenses. By Cassius D. Wescott, M.D., Assistant Professor of Ophthalmology, Rush Medical College, and Brown Pusey, M.D., Late House Surgeon, New York Eye and Ear Infirmary. Reprint. 1902.

The Clinical Study of the Blood. A Brief Guide to the Application of Blood Examination to Medicine and Surgery. By Irving Phillips Lyon, M.D., Buffalo, N. Y., Instructor in Clinical Medicine, University of Buffalo; Clinical Pathologist to the New York State Pathological Laboratory, University of Buffalo, and to the German Deaconess Hospital, Buffalo. Illustrated. Reprint. 1901.

Diseases of the Intestines, their Special Pathology, Diagnosis and Treatment, with Sections on Anatomy and Physiology, Microscopic and Chemic Examination of the Intestinal Contents, Secretions, Feces and Urine, Intestinal Bacteria and Parasites, Surgery of the Intestines, Dietetics, Diseases of the Rectum, etc. By John C. Hemmeter, M.D., Philos.D. In two volumes. Vol. II. Illustrated. Philadelphia: P. Blakiston's Son & Co. 1902.

Bionomics. Experimental Investigations with Bacillus Sanarelli, and Experimental Investigations with Malaria, in Connection with the Mosquitoes of New Orleans. By Prof. George E. Beyer, Department of Biology of Tulane University; Dr. O. L. Pothier, Pathologist to Charity Hospital, etc.; Dr. M. Couret, Assistant Pathologist to Charity Hospital, and Dr. I. I. Lemann, Assistant Demonstrator of Microscopy, N. O. College of Dentistry. Illustrated. Reprint. 1902.

## Original Articles.

THE PATROL AMBULANCE AN ADJUNCT TO THE AMBULANCE SERVICE IN CITIES; A SUBSTITUTE THEREFOR IN TOWNS.<sup>1</sup>

BY FRANCIS D. DONOGHUE, M.D., BOSTON,

*Chairman Committee on Lectures to Police and Firemen, Massachusetts Emergency and Hygiene Association.*

THE history of ambulances for military purposes goes back to the time of Napoleon, but the attempt was not made until 1869 to use ambulances in civil life.

The theory of the hospital had always been, and is now, to a lesser degree, that the hospital staff was responsible only for the care and treatment of patients within its gates. It did not concern itself with the means by which the sick or injured reached the hospital. The push-cart, delivery wagon and the public hack have all been used for conveyance, although a majority of patients have staggered in alone or supported by friends.

Bellevue, in 1869, was the first city hospital to use an ambulance in connection with its work. This ambulance and all which have followed it differ from the heavy army ambulance, built to carry three or four men at a time over rough country, by being devised for speed, the first consideration in a city service. From this beginning the New York service has developed, until today it may safely be taken as a model. Boston, however, is not lacking in transportation facilities for cases of illness or accident, and while the municipality has done little directly for an ambulance service, yet a system has been built up which, except for the feature of ambulance surgeons, cannot be excelled even by New York, while the New York lack of facilities for summoning an ambulance does not exist here.

With the growth of towns and cities outside of the great centres, and the development of local hospitals, has arisen a demand for transportation facilities which it has been hard to meet, principally on account of cost. The result has been that in many of our larger cities private individuals have purchased ambulances or substitutes therefor, and have supplied transportation to such sick or injured as could pay for it.

The demand for prompt aid for the injured in Boston and elsewhere has led to the formation of emergency hospitals, under the control of private individuals or small corporations, who, for annual contributions, are willing to give treatment and care. These institutions, however, have not confined themselves to the work which they were formed to carry out, and have injured their usefulness by developing a commercial instinct, which alienated from their support most of the profession.

Some years after the introduction of ambulances, cities found it necessary to provide means for transporting arrested persons to places of de-

tention, also means for transporting bodies of police to points of excitement or disturbance. This led to the formation of a system, connected with the Police Department, known as the Patrol Wagon System, and the usefulness of these wagons was later greatly increased by the introduction of the Police Signal Service.

It is not the purpose of this paper to show how an ambulance service can be developed as an adjunct of the modern hospital, or to enter into the details of ambulances for districts, or in connection with first-dressing stations. It is simply to show the development of one phase of first aid work which has been accomplished by the com-

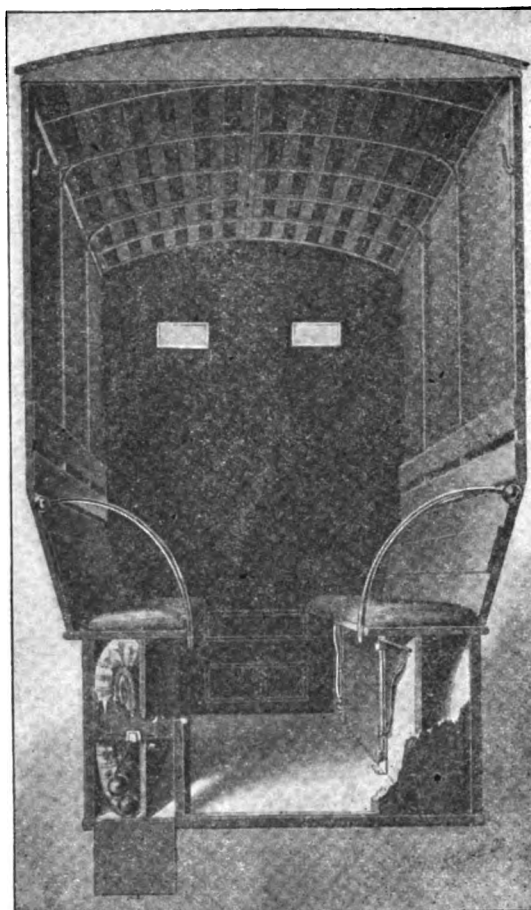


FIG. 1.—Shows interior of first type of patrol wagon. Box open on left showing method of carrying stretcher and mattress. On right is shown supports for hinged seat folded back.

combined efforts of the Massachusetts Emergency and Hygiene Association and the Police Department of Boston.

In 1898, while recovering from a severe illness, I was a witness of an accident on the street in front of my window. The man was evidently severely injured (a fracture of the leg, I afterwards learned), and it interested me to note that forty minutes elapsed before the ambulance appeared. That fall I made a careful examination of the six police ambulances and twelve patrol wagons in

<sup>1</sup> Read by invitation before the Boston Society for Medical Improvement Jan. 6, 1902.

Boston, with a view to diminish the time that accident cases could be left untreated.

The report made to the Massachusetts Emergency Society in 1899 marks the beginning of our

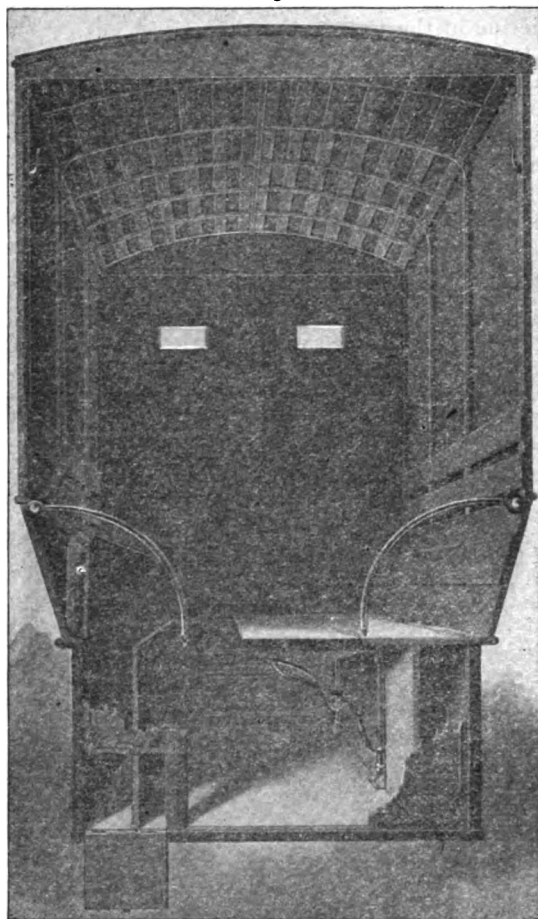


FIG. 2.—Same as Fig. 1, showing seat unfolded, resting upon supports. Width of unfolded seat twenty-eight inches.

present system of patrol wagon ambulances, or, rather, patrol ambulances.

It was recommended to the Police Department at that time that the patrol wagons be rubber-tired; water and dust proof first-aid dressing-packets be supplied; and that these wagons, already equipped with stretchers and slings, should be used to transport accident cases when a regular ambulance could not readily be obtained.

To test the recommendation, the oldest wagon in the department was equipped, and finding that slings for the stretcher were not needed with a rubber-tired wagon, a folding seat was devised, on which the stretcher with a mattress could be placed. This proved entirely satisfactory, and in the first ten months of use 260 accident cases were carried in it, either to their homes or to a hospital. This wagon was of the old covered express-wagon type, with two steps. The interior arrangements of this (Figs. 1 and 2), as well as the other type of wagon in use at that time,

are shown by the reproductions (Figs. 3, 4 and 5). The other type of wagon in use was built with a lower running gear and had but one step (Fig. 5).

In making the interior changes in this type of wagon it was found that a drop seat would obviate lifting the patient in and out at such an acute angle, so the box on one side was taken out and the seat arranged so it could be easily dropped and the patient put in on a mattress on the floor (Figs. 3, 4 and 5).

With all wagons in Boston changed, we have on call, counting additions, nine ambulances and fifteen wagons (the same for all practical purposes as ambulances), and the extreme limit of time that any case can remain without transportation, after notifying a policeman or the Police Department by telephone, is reduced to seven minutes.

A patrol ambulance now responds to first-alarm fires and an ordinary ambulance is sent for the second.

The only thing lacking in this system is the ambulance surgeon, but as the driver and helper

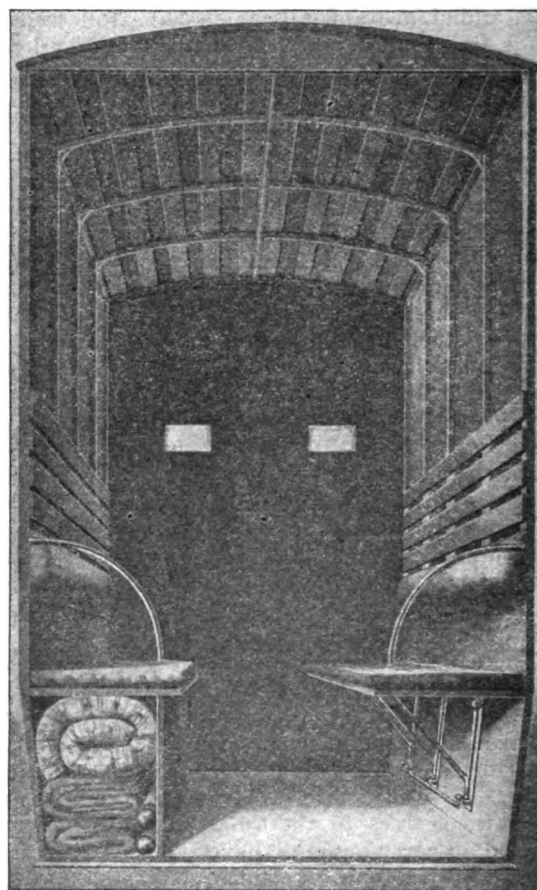


FIG. 3.—Second type of wagon, with wide body. Mattress and stretcher carried in box on left. Seat on right held by supports.

of each wagon hold a diploma for emergency work, few cases can be said to suffer from this lack.



Last year, after seeing what had already been accomplished by the modified wagon, the Police Department placed an order for a patrol ambulance, and the first combination wagon was con-

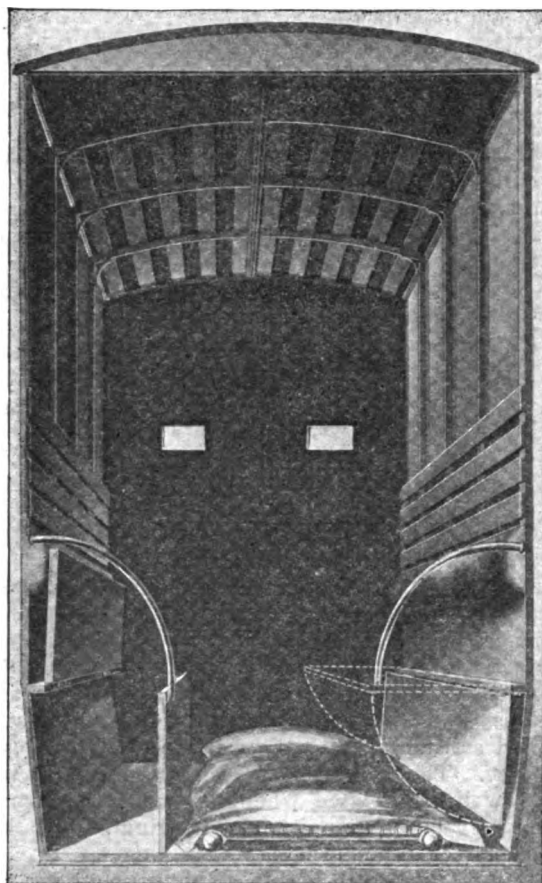


FIG. 4.—Same as Fig. 3. Supports folded back; seat dropped. Mattress on stretcher on floor.

structed. A later built wagon differs from this only in detail (Figs. 6 and 7).

The points of interest about this are: First, weight, which, including two-inch rubber tires, is 1,600 lbs., a saving of 300 lbs. over the old one, without sacrificing strength. Height from ground 32 inches, the first step being 16 inches from the ground, so that it will just come over the edge of curbstone. Interior is 6 feet 8 inches long, 45 inches wide and 6 feet 1 inch high. The seat lifts up and the end swings out, giving plenty of room for mattress on floor and for attendant on seat opposite. The cost, with platform, gear, rubber tires and full equipment, is \$750. The ordinary perch gear, two springs back and one forward, would be \$100 cheaper, but inferior in every way. The amount of power necessary to start the patrol ambulance on a level, as determined by actual test, is 19 lbs.

A further improvement is possible by making both sides alike, doing away with the box for mattress on the side and carrying mattress under,

driver's seat instead. This change would enable two patients to be carried at one time.

So much for what has been done in Boston. Knowing that a lack of transportation facilities existed outside of Boston, a circular letter with prepared blank was sent to the chief of police of each city in the State and to the chairmen of the boards of selectmen in towns of over 5,000 inhabitants. Answers have been received from 28 cities and 52 towns, and show clearly the great lack of service of this kind. Many of the cities can easily solve their difficulty by using the plan already given for changing the patrol wagon they now have.

Where there is an ambulance and a patrol wagon, the patrol wagon should be used solely for accident cases, leaving the ambulance for contagious cases or ordinary sickness. For the few cities and large towns where they have neither ambulance nor patrol wagon, they can purchase, when money is available, the patrol ambulance, which will do the work of both for the cost of one.

There is little need of ambulance service in towns, unless they are of sufficient size to maintain a hospital, and in such cases the cost of maintaining an ambulance falls now on the charitably inclined already contributing to the maintenance of the hospital.

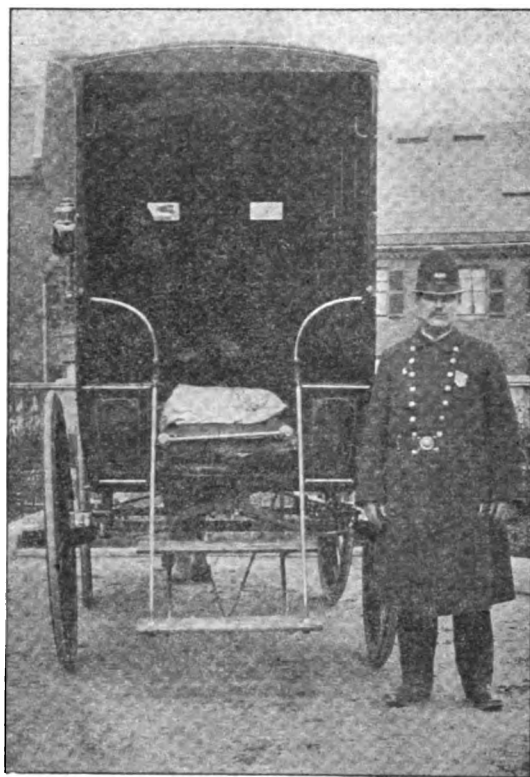


FIG. 5.—Complete wagon ready for use.

A solution of the difficulty would be found by the town purchasing a patrol ambulance, and arranging with some enterprising stable, centrally



located, with a number of horses always ready, to furnish services as needed and receive compensation for each trip.

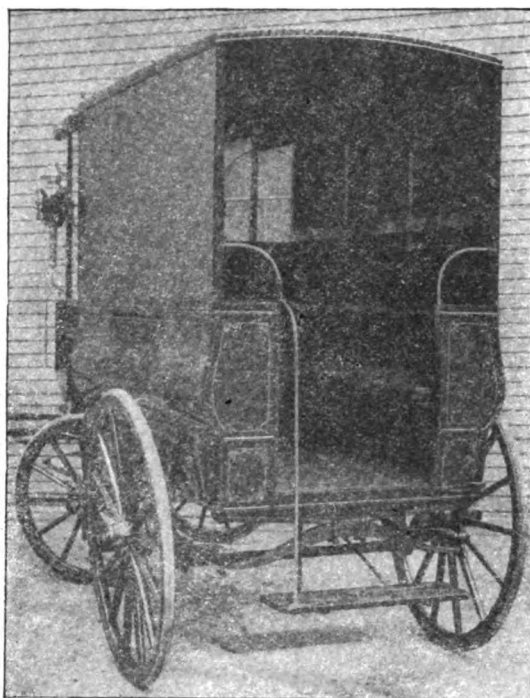


FIG. 6.—Patrol Ambulance. Seat in position, back closed.

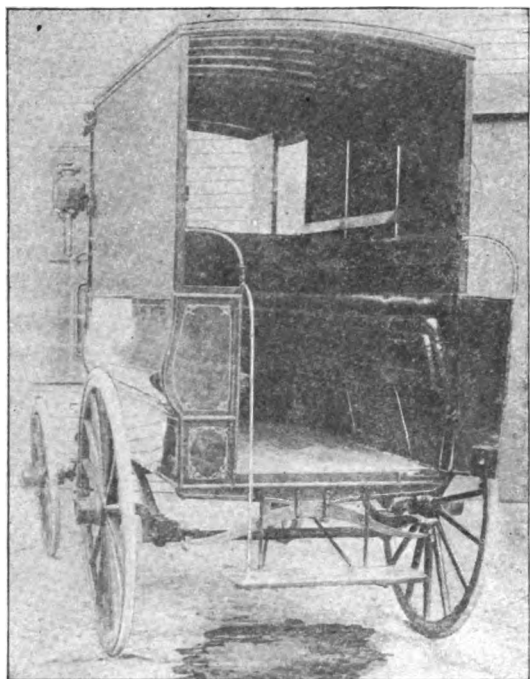


FIG. 7.—Same, with seat up, showing supports folded back. Back open to admit stretcher.

The cost of maintaining an ambulance service of this kind in a town of 9,000 inhabitants, owning a hospital (an actual experience in this State),

was not over \$300 for a year, of which patients able to pay contributed a part.

Along the lines followed in Boston, and adopting some simple system like the one outlined in this paper, much further good may be accomplished, not only in Massachusetts, but in every city and town in the country.

The ambulances which are available in Boston, however, have reached such a number that some understanding is necessary between the Police Department and the various hospitals, so that conflicts over patients will not occur. It may even be necessary to place the responsibility for ambulance calls with the Police Department, and that all calls shall come from a central station.

In closing, I wish to thank the society for its invitation to be here tonight, and for the interest it has taken in this work.

### THERAPEUTICS AND THE DRUG MANUFACTURER.<sup>1</sup>

BY BRACE W. LOOMIS, M.D., SYRACUSE, N. Y.

On looking backward through the twenty-five years preceding the present time, it is apparent that great progress, great development and great expansion have been made in all those arts and sciences which relate to medicine. The united industry of teachers and experimenters, supplemented by that of practitioners, has been marvelous, and the results of this industry have added substantially to the welfare of human existence. The record is a brilliant one, and we may well feel elated whenever we pause from our daily labor to point to the triumphs of the last quarter of a century.

But, as Fothergill has it, "the ultimate aim of all medical research is the treatment of disease," and it may be said regarding nearly all those arts and sciences, that their activity is along lines that focus in the treatment of disease, and this art, too, the art of therapeutics, has shared in the general progress and development. Our resources of treatment are greater than ever before. Methods of attacking disease are more numerous and effective. Knowledge of remedies is more specific and accurate. Relief is more certain, more prompt; cure more frequent.

However, the path of the therapist has never been a smooth one. He stumbles at times; again, he slips and often falls down. He wanders along uncertain ways, and even appears to go backward. The same mistaken observation, the same errors of judgment, the same fallacies in reasoning may occur today that have occurred times without number in any preceding period of therapeutic activity; for the human mind still behaves very much as in the times of Hippocrates or Galen, and because this is so, the therapist is even yet inspired to many sins of omission and commission that have the age and precedent of

<sup>1</sup> Read before the Semi-annual Meeting of the New York State Medical Society, Oct. 15 and 16, 1901.

antiquity, notwithstanding that his knowledge of the relation between disease and its cure is greater in every way. The chronicles of medicine, compiled slowly and with infinite labor, during hundreds of years, furnish nothing more interesting than is recorded in accounts of the treatment of disease. Sickness, pain and death, liable at any time to afflict mankind, apt at any moment to seize those who are well and prostrate those who are strong—these are the common enemy. They have always been doubly dreaded because mysterious and intangible. More terrible because the attack is from within and must be fought, for there is no retreat, no running away from sickness. If the history of medicine discloses strange notions of the nature of disease and all manner of vagaries respecting its pathology, it likewise shows the most singular ideas prevailing among those who propose to fight it. The primitive conception that illness was a scourge visited by God upon his creatures, or was a manifestation of evil spirits, lent countenance to the plan of removing it by prayer, penance and sacrifice, or by resort to incantations and use of charms. Later on, as the centuries rolled along, and definite knowledge of morbid processes accumulated, methods of relief took on a sort of scientific coloring, and in many instances were founded on a respectable basis of accurate empiricism. The great past contributes a category of agents and measures almost innumerable, and their character includes every variety of crazy conception, as well as all that belongs to the practical, the sensible and the scientific. A curious aggregation of beliefs and practices; but out of the jumble of facts and fancies, of truths and delusions, of improbable imaginings and sound knowledge, have come the axioms and principles of rational therapeutics as crystals settle and form pure and clear out of turbid and unclear solutions.

As a preliminary to the consideration of certain principles of rational treatment, it seems advisable to refer to important natural tendencies of the organism that have a very material bearing on the management of illness. First of all, comes the principle of self-limitation of most acute diseases, and closely connected with this is the fact that most acute diseases having reached this natural and predetermined limit, the patient then recovers. When the records of clinical medicine are investigated, it is found that physicians during hundreds of years were not influenced by those facts for the reason that they were ignorant of them; and, strangely enough, there are many followers of our art today who ignore them likewise. To be sure, they admit them in theory, but in practice they seem to ignore them. Still another fact requiring mention because of a similar disposition to forget or ignore it, is that many symptoms rightly considered are in truth the outward manifestation of an effort initiated by the organism for its own relief and cure. Partly on account of the facts thus outlined, and partly because the fallacy involved was too seductive

to be easily avoided, most practitioners were led to habits of therapy that have their origin in an impulse of the powers of reason that nearly always dominates, namely, to combat symptoms and to seek to remove them *seriatim*. All those plans of treatment and the legion of medicines having "anti" for their prefix, are the natural result of this combative therapy. Probably its origin was coeval with the earliest and most primitive efforts toward treatment, and as a method it has been established hundreds of years. Is the sick man weak? Give him something that will make him strong. Is he restless and wakeful? Give him something that will quiet him. Is his pulse rapid? Give him something that will make it slower. And so on, taking the symptoms in series. The practice of combating symptoms on the supposition that they constituted the disease itself and were of necessity harmful, led those who were disposed to be energetic in their practice to fallacious reasoning of another kind, the consequence of which was, that in addition to too many medicines, too large quantities of medicines were administered, and the ills of polypharmacy in connection with drug poisoning were often added to the primary disease. It has been necessary to refer to this ignorance of the essential limitations of diseases, together with certain mistaken tendencies in treatment, in order to better understand the principles of rational therapeutics which were slowly formulated, and which are the outcome of hundreds of years of observation and experiment.

Briefly, the essentials of a sound therapeutic method are as follows:

- (1) Keeping in mind the tendency of self-limitation of pathological processes and the possibility of cure as a result of natural forces, never prescribe a remedy that will interfere with, or upset the conservative efforts of, the organism.
- (2) Keep the problem of treatment as simple as possible by the exhibition of few remedies, well selected.
- (3) Bear in mind the possibility of aggravating existing pathological conditions and introducing new ones, by injudicious or too heroic methods of treatment.
- (4) Remember that the benefit to be expected from remedies is generally offset or neutralized, when a large number of remedies are exhibited at the same time.
- (5) Try to remove the cause—this presupposes a careful study of the case, rather than a hasty prescription for this, that or the other symptom.
- (6) Do not forget that most medicines are two-edged swords—if a medicine does no good it is likely to do harm.
- (7) Prescribe for conditions, not diseases.
- (8) When necessary, hit hard, but not too often.
- (9) Watch constantly for symptoms that may be the result of remedies prescribed for the relief of other symptoms.

A category of principles of rational treatment might well include more than the above, but this list is comprehensive enough for argument, and will help make plain certain vicious tendencies in therapeutics which have multiplied, or at least become more obvious and general, in recent times.

During the past ten years, the volume of capital invested in the manufacture of medicines and chemicals has increased to a point nearly beyond commercial safety. Immense sums have been expended in equipping laboratories for the production of all the older forms of remedies and thousands of new ones. The capital once invested, the goods are made and put upon the market, and have got to be sold. To this end,—to the selling of the product, thousands of dollars are further expended for free samples to physicians, for “literature,” as it is called, and for the hire of salesmen who understand well how to dispose of their wares. As a result of this activity of the drug manufacturer, physicians and patients together purchase a bulk of medicines in the form of tablets, pills, granules, tinctures, fluid-extracts, elixirs, synthetic products and derivatives, that is unparalleled and almost incredible.

Manufacturing druggists are in business for revenue—not for love of science, but for profit. They intend to make the public, and that means the retail druggist and doctor and patient, pay interest and dividends on their large investments. Of course the energy and enterprise of drug dealers and manufacturers has furnished much that is valuable, but the point is that this vast commercial enterprise has its bad side, and the medical profession has been harmed by it. Used wisely, many of the new preparations are helpful to both physician and patient, but the contention is, that the methods in vogue to effect their enormous sale have produced a dangerous departure from the beaten track of scientific therapeutics. These methods are alluring and convincing. That is, they convince a sufficiently large number of those who follow the profession of medicine. Not very long since the representative of a well-known drug house admitted in the course of an argument on the subject that much harm was done by trade methods, “but,” he said, “we do it because it pays.” Doubtless it does pay the drug manufacturer, but does it elevate the practitioner to the plane of an expert prescriber—one who brings to his aid the information furnished by modern pathology and modern methods of accurate diagnosis, and who, working on such a foundation, constructs and supervises a sound and efficient plan of treatment? Does not many a physician unknowingly fall into errors that were ignorantly practised years and years ago? The same errors essentially—different in outward form, but similar in essentials to the mistakes of the fathers in medicine. Doubtless it does pay the drug manufacturer. Let us see whether it pays the honest physician. Let us see whether the quality of the prescriber’s work is improved or depreciated. In order to approach this aspect of the subject easily, it will be expedient to quote from the pub-

lished dose-lists a few of the preparations. Besides the long catalogue of liquid preparations all trade-marked and copyrighted, which are not far removed from proprietary and patent medicines, there are in the form of pills, granules, tablets, etc., antiasthmatic, anticonstipation, anti-dyspeptic, antimalarial pills; bronchitis, enteritis, rhinitis, cystitis, diabetic, dyspeptic, sciatica, fever, voice, heart and throat tablets. On the list is found a therapeutic inspiration called “Hooper’s Female Tablet.” There are hundreds of others. Who can deny that these aids to treatment simplify the work of the physician? If a patient comes in complaining of sore throat, give him some throat tablets. Or if the prescriber would be more specific and treat the hoarseness that may be present, let him add a voice tablet. If the sufferer should happen to be a lady, complete the combination and make it solid with a female tablet. Thus the indications are met, the road to treatment is rendered easy, and we have the word of the drug manufacturers that thousands of our brethren tread this straight and narrow way.

With the enormous array of drug combinations at hand, does the prescriber always study the individual needs of the case? Does he always try to provide a carefully thought out remedy or remedies for the patient, or does he not try to fit the case to the ready-made medicine? Does he not gradually drift into polypharmacy? In many instances has he not allowed the drug manufacturer to do his thinking for him? Instead of remaining a thoughtful, observing and scientific worker, may he not degenerate into a gentlemanly sort of “middle-man”?—the patient on one hand and the manufacturing pharmacist on the other hand—the manufacturing pharmacist who instructs him as to what he shall prescribe and when he shall prescribe it!

To these questions there are answers derived from a number of different sources. Testimony of manufacturers themselves should come first, and following is what their agents have stated in their own words. One of them says: “We sell these combinations to thousands of physicians.” Another: “It is a fact that many physicians keep our list and dose manual before them on the desk to use it as a help in prescribing.” The clever representative of a well-known house said: “Nine-tenths of the younger men buy our goods and use them for the class of cases we specify.” On one occasion a young physician who had given up practice for the more lucrative occupation of selling a new malt product, said in the course of discussion: “I have practised medicine for five years, and sometimes when out of reach of So and So’s tablets, I often had to stop and think a long time what to give for the relief of a patient. I had forgotten many of the ingredients of the tablets I was in the habit of prescribing.”

“To see ourselves as others see us” has been held to be salutary, so in this connection the views of intelligent pharmacists as to the effect

of the present commercial activity on the quality of prescription work may be worth our attention. One says: "These 'cut-and-dried' mixtures are taking the place of the carefully prepared prescription of years ago." One member of the New York State Board of Examiners in Pharmacy, long known as a leader in his profession, after referring to the injury done to legitimate pharmacy, asks: "But has not this had its corresponding bad effect on the young physicians of the day? The pharmacist notices that most of the therapeutists appear to draw but lightly on their gray matter when prescribing for patients, and paper brains seem to be the rule rather than the exception."

Finally, there can be no doubt — no reasonable doubt — that pathological conditions are complicated and added to, by misdirected zeal. It is not uncommon to find patients taking fifteen, twenty or more medicines in the twenty-four hours. Even thus handicapped, the recuperative power of the human system offsets and covers more sins than Charity — tenfold!

Systems of therapeutics come and go. Paracelsus, Brown, Resori, Stahl, Hahnemann and many other workers and thinkers have had their day, and influenced the practice of medicine. Wonderful specifics and novel doctrines spring up, monopolize the attention of practitioners, promise much, fulfil little or nothing, and in due time are reduced to whatever level their merit deserves. This has been the history of the past and will be the experience of the future. It would seem reasonable to insist that the work of the individual prescriber be as free as possible from the errors of those who have preceded him and that he should profit by the mistakes of the army of workers who have passed away, but whose record of achievements and failures lies before him. The principles of rational treatment, a few of which are dwelt upon in this paper, ought to help him to avoid many of those mistakes so often associated with the art of healing. They should warn him against the chase of many a will-o'-the-wisp, and in due time raise the quality of his efforts to the dignity of skilful therapeutics. Skilful therapeutics is no easy art to master. No man becomes a therapist from giving medicines according to such directions as are found in books and journals and in the literature of drug manufacturers. Attending lectures and recitations and passing examinations never made a therapist. Laboratory work will not educate a student up to that high standard of accomplishment. The student becomes a graduate, the graduate becomes a practitioner, but not until years have passed — years of experiment and observation at the bedside, in the consulting room and dispensary and hospital ward — does he get to be a therapist in the broad meaning of the term. So many arts and varieties of knowledge are only stepping-stones; the way is uncertain and slippery, the footing insecure, and, indeed, to this kind of learning there is no royal road.

## Clinical Department.

### A CASE OF TETANY IN AN ADULT.

FROM THE SERVICE OF DR. F. C. SHATTUCK, MASSACHUSETTS GENERAL HOSPITAL.

BY EDWIN A. LOCKE, M.D., BOSTON.

E. M. Q., age 36, married. Family history good. Habits: Two to three glasses of whiskey and three to four of beer per day; occasionally intoxicated. Tobacco, tea and coffee in moderation. For thirteen years the patient has worked in chain forging shop at the U. S. Navy Yard. Work is very hard and gives constant exposure to changes in temperature, before the furnaces the thermometer often registering from 120° to 130° F. From the furnaces the patient often goes to cool place, or plunges hands into cold water. He sweats profusely, and not infrequently stands in water. Much of time his work consists in holding the sledge while a fellow-workman strikes. Excellent general health. Measles and whooping cough in childhood; never sick in bed since. No history of rheumatism, cardiac, renal, gastric or pulmonary troubles. Eighteen years ago gonorrhea and questionable syphilis.

Seven years ago began to notice occasional cramps in muscles of hands and forearms, accompanied by sensations of tingling and numbness, but with no malaise, headache, nausea or vomiting. One day suddenly became much worse, and hands could not be released voluntarily from handle of hammer. When released by force, the fingers immediately assumed former position, that is, the fists clenched tightly. With continuation of work the cramps moved to muscles of loins, and finally to those of the feet and legs. Suddenly, about 4 P.M. of the same day, the muscular spasms became so severe that the patient was completely overcome, felt dazed and in sort of stupor, and rolled about the floor in agony. The sensation was described as that of severe muscular cramps rather than real pain, the affected muscles being intensely hard, board-like and slightly tender. This muscular involvement was present in nearly all parts of body, various sets being affected either at same time or successively, and lasting in most cases from a few seconds to ten minutes. Face was cyanotic during an attack; heart accelerated. Polyuria was present, but no vomiting or defecation. The power to bear hot applications without pain, which attendants could scarcely handle, indicates a moderate degree of anesthesia. The application of hot cloths to muscles with vigorous massage gave much relief after three-quarters of an hour, and in two hours the patient was able to go home. All night he felt weak and had slight numbness in muscles, but in the morning symptoms had entirely disappeared. Subsequently, at long intervals, the cramps appeared in very mild form, usually after very exhausting work.

Three years later, at 5 P.M., a second attack came on exactly simulating the first, though of

shorter duration, in consequence of measures for relief which were early and vigorously applied. In usual good health on the following day. Many times since then at end of hard day's work, especially if associated with exposure to great variations in temperature, very moderate symptoms of a similar nature have appeared.

Feb. 19, 1902, a third attack of same character as previous ones, though much more severe. Like the others, it appeared in the late afternoon, and was preceded by numbness and cramps in muscles all day. At onset, vomited and voided urine several times; no movement of bowels. One hour after onset I saw the man in the accident room. He was then prancing up and down the room, apparently in great agony.

*Physical examination.*—The spasms changed constantly from one muscle, or group of muscles, to another, either spontaneously or with massage, and were confined chiefly to the flexors and adductors. The position when first seen was striking, the head drawn slightly to the left, the fingers strongly adducted, wrists flexed, forearms flexed and slightly rotated internally, the arms adducted and held firmly across chest; the thighs, legs and feet somewhat flexed, toes partially extended and abducted. With the exception of the right sternocleidomastoid, no involvement above the clavicles could be made out. When examined, the muscles were found to be in a state of tonic contraction, usually symmetrical, board-like and tender, with no fibrillary twitching. No impairment of sensations could be made out; no clonus. Westphal's sign was absent, but the abdominal cremasteric and plantar reflexes were found normal. Trousseau's sign (the characteristic spasms induced by pressure upon the large nerve trunks) showed strikingly. In the absence of suitable apparatus it was impossible to determine the electrical irritability of the nerves. Face deeply congested, some general cyanosis. Pupils equal and react to light and accommodation. Few small lymph nodes palpable in axillæ and groins. Whole body drenched with perspiration. Visceral examination negative. Genitals: small scar on glans, otherwise normal. No edema. Temperature normal; rate of pulse and respiration moderately increased. A specimen of urine obtained at this time showed the following analysis: Normal color, slightly acid, albumin a trace, sugar and bile absent, chlorine considerably diminished. Sediment very little. Few hyaline and fine granular casts with occasional renal cells adherent. Few renal cells and leucocytes. Occasional large epithelial cell. No blood.

Vigorous massage, heaters and morphia while in the accident room, soon gave relief, and in two hours the patient went home feeling as well as usual, except for weakness and headache.

Since that time, I have twice seen the patient. He has had no return of symptoms and the physical examination has each time been negative. The presence of a trace of albumin and casts in the urine during the attack observed, led me to examine a specimen from the twenty-four hourly

amount after recovery; but nothing abnormal could be made out.

The relative infrequency with which the disease occurs in America, together with several important and interesting features which this case presents, have made it seem worthy to record. In 1894, Griffith was able to collect but 72 cases in America. Somewhat later, in Germany, Frankl-Hochwart brought together 399, including all ages, of which 83% were between the ages of 16 and 25. Of the 142 cases studied by Gowers in 1898, but 13 occurred in males above the thirtieth year, and only 4 between the thirtieth and fortieth. In general the disease is shown to be slightly more common in males than females, more frequent in the first and second decade of life, and very rare after the fortieth year.

The question of etiology in the present case is of considerable interest, since we find a striking absence of all the commonly recognized causes, that is, gastro-intestinal disturbances, removal of the thyroid, pregnancy, lactation, acute fevers, toxic conditions, epidemics, and epilepsy. Among the "occasional causes" are usually mentioned prolonged muscular work, with fatigue, alcoholism, and exposure to cold and wet; and to these the history of the case points strongly. Not infrequently, after an unusually hard day's work, the patient, as mentioned in the history, noticed slight tingling sensations in the fingers and arms, or moderate spasms in some of his muscles, and each of the three attacks of tetany occurred with marked fatigue. The somewhat excessive use of alcohol and the constant exposure to great changes in temperature, made necessary in his work, would also seem to be of importance as etiological factors.

A differential diagnosis is not difficult. The typical muscular spasms and position of the arms, the onset in the muscles of the extremities, the involvement of certain groups only, their bilateral and intermittent character and presence of Rousseau's sign, together with the presence of recognized etiological factors, are overwhelmingly in favor of tetany (Russel).

From epilepsy this condition is readily distinguished, for though the epileptic spasms may be tonic and bilateral, they are of much shorter duration, and consciousness is completely lost. In the case of the Jacksonian type, the convulsions generally begin in one set of muscles or extremity as tonic spasms, later becoming clonic; and if they become general, consciousness is lost. Furthermore, headache, vomiting, and other premonitory signs, if present, are conclusive.

Muscular spasms in cases of cerebral congestion, if repeated and of short duration, may also simulate those of tetany, but are to be differentiated by the more marked cerebral symptoms and by the absence of the "localizing and evolutionary" characteristics of tetany.

Hysterical conditions in rare cases must be considered. Here the absence of the above-mentioned signs and symptoms of tetany, together with the presence of the characteristic symptoms

of hysteria, are sufficient to distinguish the two diseases.

Of especial interest in this case are the presence of polyuria and albuminuria during the attack, but few cases of either condition being recorded. They are much more frequently found in children than adults. Hoffmann, Neusser, Mader and Frankl-Hochwart each mention one case of polyuria. Among seventy-two cases in children examined by Loos, only two showed albumin in the urine. Frankl-Hochwart and Hoffmann have each reported one case.

## TWO UNIQUE CASES OF HYSTERECTOMY.

BY W. P. GIDDINGS, M.D., GARDINER, ME.

**CASE I.** On Feb. 16 of the present year I was called to see Miss W., age 31, of slight build, countenance sallow, pinched and anxious. She had been more or less an invalid for several years. Family history negative. Six years ago she entered the General Hospital of Lewiston, Me., where she had curettage done for excessive flowing. She states that she was then advised to have oöphosalpingotomy done, but declined. So much improvement followed curettement that she resumed her work, that of running a stitching machine in a shoe factory. She continued at this employment, except that twice during the six years she had two attacks of pelvic peritonitis that laid her by for two or three weeks each time.

It was in the midst of the last attack that I saw her, and convalescence had evidently begun. An examination, made as carefully as circumstances permitted, showed that a severe salpingitis existed, and an early operation was advised. She entered the Augusta City Hospital in a few days, and I operated on her Feb. 22. I found the uterus bound down firmly by old organized bands, several of which had to be tied and divided. The small intestines lying over the parts were matted together, and also adherent to the uterus and its appendages. These were separated from each other and from the womb with considerable difficulty. On the left side there was a large irregular mass representing the tube, ovary, and broad ligament, the whole constituting two abscess cavities. On the right side there was a large distended tube strongly resembling a great sausage. The whole space surrounding these masses was packed off, and an attempt was made to separate the right tube without rupture. It proved to be very friable, and ruptured quickly despite every care, and pus literally poured out, saturating the sponges and escaping into the abdominal cavity; the same happened on the left side. After much difficulty the whole was removed, and the toilet completed by washing thoroughly with normal salt solution; drainage inserted, and the abdomen closed.

The peculiar feature of this case is, there was not the slightest evidence that there was ever any ovary, uterine ligament or other of the usual

structures except the tube of the right side. On the left there was suppurative salpingitis, and an abscess of the ovary that involved the whole of the broad ligament to the uterine body, which together contained at least one-half pint of pus. The temperature reached 100° F. in the evening of the first day, but during the night dropped to normal, and it and the pulse continued so to the completion of convalescence, which was in three weeks.

**CASE II.** Miss C., a music teacher, age 39, a woman of exceptionally good family history. Fifteen years ago she was operated on at the Maine General Hospital for an unilocular ovarian cyst on left side. Nothing unusual attended the case or her convalescence. In the fall of 1901 she began to experience discomfort in pelvis, which increased so much that she consulted me in December last. I found on examination that the uterus was crowded low in the pelvis, fixed, enlarged and tender. Diagnosis: Fibroma with subacute metritis.

On Jan. 22 I was called to see her at her home in an adjoining town, and found her seriously ill with metropéritonitis. After a month's severe sickness she gradually improved and entered the Augusta City Hospital, and on March 7 I operated on her. As in Case I, adhesions were general but less firm. I did find, however, an addition to the trouble that I had not suspected. There was an abscess of the right ovary the size of a large orange, and had invaded all of the broad ligament, except the Fallopian tube, which was free. In this, also, the friability of the abscess walls were such that in trying to separate the adhesions beneath, the sac ruptured, and a large amount of pus diffused itself in all directions, and despite the precautions taken it found its way into the general cavity. This was cleansed by washing thoroughly with normal salt solution, and a wick drainage put in; the wound closed in tiers.

In neither case, after the first evening, was there any rise of temperature or acceleration of the pulse rate. The drainage was removed the third day in both cases, neither having been soiled. The convalescence was steady from the first, and complete at the end of the third week. From the fact that in each case pus in considerable amount was diffused among the intestines, I was naturally apprehensive that septic infection would follow, but they proved an apt illustration of the truth of Dr. Morris' claim, that where pus has existed sufficiently long to infect more or less the whole system, the peritoneal cavity seems to acquire an immunity against reinfection. In Case I there was abundant evidence that the system was infected, she having had chills, followed by profuse perspiration, for two weeks before operation. The condition of the skin and general look of the features also confirmed it. In Case II no such conditions were obtained, and the presence of the abscess was a surprise. The malformation in Case I is to me something entirely new. The tube was intact, and but for the absence of the fimbriæ, was otherwise like all pus



tubes. The most careful examination after removal of the uterus fails to show even a rudimentary part of anything like a broad ligament. In Case II it was the abscess that had crowded down and fixed the womb in the position I first found it, for while there was a fibroid, this was in the upper anterior part of the uterine body, exerting no influence on the malposition.

#### MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

REGULAR meeting, Feb. 14, 1902, Dr. C. B. Porter in the chair.

Dr. A. T. CABOT described a case of

##### MOVABLE KIDNEY WITH HEMATURIA.<sup>1</sup>

Dr. JOEL E. GOLDTHWAIT demonstrated a case from Dr. Richardson's service of

##### CONGENITAL HYPERTROPHY OF THE TIBIA

in a young man twenty-one years of age, showing a radiograph taken of this case, and for purposes of differential diagnosis, radiographs illustrating osteitis deformans, the different syphilitic bone lesions, osteo-arthritis and osteomyelitis.

He also showed a case from Dr. Fitz's service of

##### OSTEITIS DEFORMANS

in a woman fifty-five years of age, in whom all the long and flat bones of the body were affected. Attention was called to the fact that at times the disease may be present in only one bone, and may remain as a local process in many joints.

He also showed a case from Dr. Shattuck's service of

##### OSTEO-ARTHRITIS OF THE SPINE

in a man fifty years of age, in which the only symptom was pain in one leg, this being increased by exertion. The motions of the spine and the character of the limitation of motion were demonstrated.

Dr. J. P. CLARK reported a case of

##### CICATRICAL OCCLUSION OF THE TRACHEA.

The patient was a girl, aged five years, who had had complete cicatricial occlusion of the upper part of the trachea following an attack of diphtheria, in which intubation had been necessary. Early in July, 1900, this child was operated on by Drs. Conant and Clark. The cicatricial tissue was incised and stretched from below, through the enlarged tracheotomy wound, and a hard rubber intubation tube of the size used in an eight to ten-year-old child inserted. This was worn continuously for eight weeks, and after an interval a 10-12 tube was inserted. The child wore one or the other of these tubes, with increasingly long intervals of omission, for nearly a year. She has

now been without any tube for eight months and breathes with apparent ease. There is almost no voice, owing, apparently, to the way in which the left vocal is held in a position of complete abduction by a cicatrix. This case is to be reported in detail at an early date.

Dr. F. C. SHATTUCK demonstrated

##### TWO CASES OF ACROMEGALY.

I wish to show tonight two patients, both of whom have acromegaly. The first patient was seen in the Out-Patient Department by Dr. J. M. Jackson, and at the request of Dr. Musgrave has kindly consented to come here tonight. I wish also to report briefly a case of typhoid fever with perforation.

CASE I. This woman (Fig. 1) is 52 years of age, and was born in Germany. Her family his-



FIG. 1.

tory is unimportant, and her previous history has no bearing on her present illness. Three years ago she began to have occipital headaches, which have been more or less persistent since. Associated with these have been lassitude and weakness. For the past year she has complained of irregularity in her menstrual flow. Associated with this there has been increasing weakness and dyspnea. Six months ago she had an attack of polyarticular rheumatism. Both knees were swollen, red and tender. For the past five months they have troubled her more or less. She dates the gradual enlargement of her hands and face from this time. There is moderate enlargement also present in the feet. The thyroid gland shows slight enlargement. The case, although well marked, is not nearly so far advanced as the patient whom

<sup>1</sup> See Journal, March 6, 1902.

I will next show, who came into my wards a few days ago.

CASE II. This patient (Fig. 2) is 40 and single, a cook. She was born in Ireland and her family history is unimportant. She has had excellent general health up to four years ago, when she first noticed severe pain in the right hip. She attributes this to sleeping in a cold room. The pain has been more or less constant since that time, especially when standing. She is practically free from pain when lying down. One and one-half years later the left hip became similarly affected, but to a much less extent. At present there is marked limitation of motion in the right hip, and the process is considered by Dr. Goldthwait to be an osteo-arthritis and independent of the condition for which she enters. She dates the beginning of the enlargement of the face and extremities (Fig. 3, which shows the patient's hand com-



FIG. 2.

pared with the hand of a large normal woman) to one year ago. She thinks the face became large at first, next the hands, and in a few months the feet. The enlargement has been progressive during the past year, and there has been some loss of muscular power. She is naturally a large woman, her best weight being 223 lbs. five years ago; but in spite of the steady progress of the disease and the increasing muscular weakness and difficulty in walking, she has been able to continue her work as a cook, up to the day of entrance to the hospital. Her urine is practically negative, and her blood shows nothing beyond a moderate degree of anemia.

CASE III. A male, age 19, a machinist, entered the Massachusetts General Hospital Jan. 1, 1902, with typhoid fever, apparently at the end of the first week of the disease. The course of the dis-

ease was mild and uncomplicated until Jan. 13, when the record states: "At 1 P.M. he complained of sharp, cramp-like pains across the lower abdomen. There was some rigidity and tenderness of the abdomen present. The pulse, respiration and temperature were unchanged. The white count was 6,100. There was no iodophilia present." At the evening visit there was no pain and the abdomen was soft.

The record of Jan. 14 states: "At 6 A.M., one hour after bath, he was seized with cramp-like abdominal pains, followed by a slight chill. There was no nausea, but he vomited a dose of brandy. No vomiting afterward. At 8 A.M. the patient was lying on his back with the thighs flexed on body. He was feeling as usual except for moderate abdominal tenderness. His pulse was of good quality. The abdomen was very rigid, generally tympanitic; the liver dulness was encroached upon. There was marked tenderness in whole lower abdomen, more marked on left. Very slight shifting dulness in left flank. No

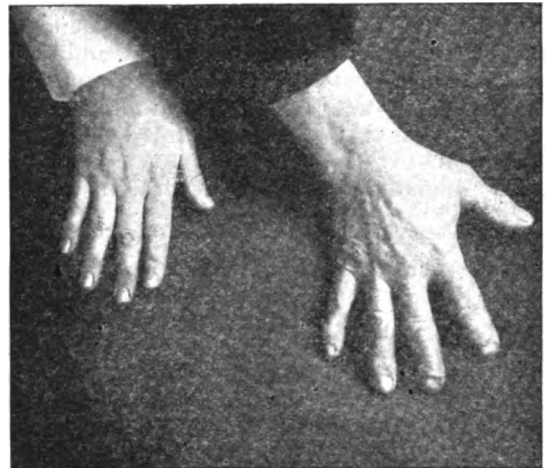


FIG. 3.

masses felt." His pulse and respiration slowly rose, until at 11 A.M. his temperature was 104.4°, pulse 116, and respiration 25. He was seen in consultation by Dr. Warren and Dr. Greenough, and transferred for operation within six hours after the first definite symptoms. White count, Jan. 13, 5.30 P.M., 6,800, no iodophilia; Jan. 14, 9 A.M., 9,400, slight iodophilia; Jan. 14, 11.45 A.M., 11,800, good iodophilic reaction.

An interesting feature in his case is the fact that after the operation he had a typical relapse, from which at present he is convalescing.

DR. R. B. GREENOUGH gave the surgical report of Dr. Shattuck's last case.

TYPHOID FEVER; PERFORATION; OPERATION;  
RECOVERY.

Operation by Dr. Warren. The abdomen was opened in the median line below the umbilicus. Cloudy fluid was found in the right iliac fossa and pelvis, which on culture showed colon bacilli.

A pin-hole perforation was found in the ileum about fourteen inches above the ileocecal valve, on the side opposite to the mesentery. A piece of fibrin was firmly attached over the opening and was removed. Gas then bubbled from the opening. The perforation was then closed with a double row of Lembert sutures, and the bowel washed off with salt solution. There was considerable fibrin on the bowel in this region. The rest of the abdomen was then washed out with salt solution and the wound closed with gauze drainage.

After operation the pulse and temperature dropped for several days but rose again gradually, until by the end of a week after the operation it was evident that the patient was undergoing a relapse of his typhoid. The course of this relapse was apparently not modified by the operation, and on the twentieth day after operation the temperature reached normal and has remained there ever since. The stitches were removed from the abdominal wound on the ninth day, and on the tenth day the edges of the wound pulled apart, owing to the cough which accompanied the relapse of the fever. The wound was again closed with secondary sutures, and at the present time is almost healed by granulation. The operation was a month ago tonight. The patient is now taking a diet of soft solids and is doing well.

DR. GREENOUGH reported for Dr. Warren :

SUPRARENAL TUMOR; OPERATION; DEATH.

The patient was recommended to the hospital by Dr. R. C. Cabot and entered the East Surgical Wards Oct. 24, 1901, with the following history: Man, age 49, native of Nova Scotia. Family history and previous history negative. Two years ago the patient fell across a wagon wheel, bearing his whole weight on his left side. Was in bed for about four months and passed bloody urine for a year. Hematuria was not constant, but occasionally large amounts of blood were passed. None has been noticed now for six months. Immediately after accident he noticed a tumor in the left side of the abdomen. He had not noticed anything before that time, and considered himself in perfect health. He has had considerable pain in region of tumor, and has lost weight and strength. Symptoms of gastric disturbance have developed in this time, nausea and occasionally vomiting, but no blood was noticed in vomitus or stools.

*Examination.*—Well-developed but poorly nourished individual, with slight yellow tinge to skin. The heart was not enlarged, but a loud, rough, systolic murmur was heard in the pulmonic area, replacing the first sound almost completely, and transmitted slightly in all directions. In the abdomen, on the left side, under the costal border, a hard mass is felt, about the size of a fetal head. The mass moves slightly, if at all, with respiration, and can be palpated through the flank. The mass presents a rounded border and no notches could be felt. The inflated colon lay

superficial to the tumor. The liver was enlarged to three fingers' breadths below the costal border but was not nodular. No abdominal rigidity or tenderness was present, except on pressure over the tumor; no ascites. The patient's pulse was of unusually high tension, and both radials and temporals showed sclerotic changes. The urine was normal except for a slight trace of albumin and a few blood corpuscles. A later examination, however, showed a few casts. The blood examination gave: Hemoglobin 50%, reds 3,600,000, whites 7,000.

The diagnosis of a tumor of the kidney was made, and the probability of a tumor of suprarenal origin was considered on account of the marked arterial changes at the comparatively early age of 49.

On Nov. 2 Dr. Warren undertook the removal of the tumor by operation, but was called away, and left the completion of the operation to the writer. A vertical incision in the left linea semilunaris was made, and from this a transverse incision into the left flank. The right kidney was examined and found normal in size and position, and the abdominal cavity was then walled off with gauze. The tumor was then shelled out and its pedicle clamped. The tumor was removed and gauze packing put in to control the oozing from adhesions, which was not particularly abundant. Upon examination of the pedicle it was evident that the renal vein was occupied by a growth of the tissue of the tumor as far as it could be traced. The rest of the tumor could be removed without difficulty, but that in the vein could not be taken out, and was included in the ligature, which was passed as high as could be reached. The patient was in extreme collapse, but responded to infusion and stimulation.

The pathological report received from Dr. Whitney was "sarcoma or perithelioma" of adrenal origin.

The patient died in about twenty days, with gradual loss of strength and increasing cachexia. No autopsy could be obtained.

DR. C. B. PORTER reported a case of

INTESTINAL OBSTRUCTION; TWO OPERATIONS; RECOVERY.

E. A. C., age 50, married; housework. Entered the hospital Dec. 28, 1901. Temperature, 100°; pulse, 102; respiration 25. Recommended by Dr. R. H. Fitz for intestinal obstruction.

*Family history.*—Good.

*Past history.*—Has been a very healthy woman all her life, though usually troubled with constipation, often requiring cathartics. Catamenia regular, normal. She was married at twenty-three, and has had four children and one miscarriage.

*Past illness.*—Five months ago she was taken with sudden, cramp-like pains in the abdomen lasting a day or so. These pains were general throughout the abdomen. She had a second, less severe attack three months ago. These attacks

were accompanied by diarrhea and vomiting, but not by fever. One month ago the patient began to feel weak and tired, while the bowels were moved with greater difficulty than ever before. There commenced to be "rolling" of the bowels and, at times, pain. About every three days there was a large, hard movement. The general health has been growing steadily worse, as shown by anorexia and nervousness. For the past two weeks there has been no change in the symptoms. She has had vomiting spells of late, though none for the last four days. The bowels have not moved for four days. She has never been jaundiced, or had any urinary trouble that she knows of.

*Physical examination.*—Urine: Color dark, acid; specific gravity, 1.028; sugar absent; albumin, slightest possible trace; sediment, rare hyaline and granular casts, a few small round cells. Indoxyl normal, bile absent; white count, 12,000. She is well developed and nourished, but looks weak. The face is dusky and yellowish, the tongue heavily coated, the chest normal. The abdomen is very full and distended. Peristalsis is visible in large coils. There is a continual change, but one large coil above across the epigastrium, and another below across the lower abdomen are pretty constant. There is no tenderness. Slight dulness is present in the right flank, which does not shift with posture. No masses are to be felt. Nothing is felt by rectum, which is empty. Vaginal examination negative. She was given  $\frac{1}{16}$  gr. of atropin and a high, hot oil enema without results, afterwards nutritive enemata every four hours. On the following day, Dec. 29, there was slightly less distention and some improvement in color, but no movement. On the 30th the physical examination was the same, and she was in better condition.

*Operation, Jan. 1,* by Dr. C. B. Porter. An incision five inches long was made below the umbilicus, in the median line. The large and the small intestines were greatly distended and filled with soft feces. The enlarged, elongated sigmoid had a constriction at about its centre, apparently a cicatrizing malignant growth. This was limited to a very small area of the bowel, about one inch. There were no adhesions or bands. The sigmoid below the stricture was collapsed. No enlarged glands were discovered. A Mixer tube was inserted into the descending colon, 8 inches above the stricture and fastened to the abdominal wall. For four days there was a free discharge of feces by the fistula, while the distention and the visible peristalsis faded gradually away. The Mixer tube came out on the third day. On the tenth day there began to be small daily movements by the rectum, while there were several large movements through the sinus each day. The rectum was thoroughly flushed out each day with salt solution by means of a tube in the rectum and a catheter in the wound. The fistula was closed with a cocoon, and a second operation done on the twenty-second day by Dr. C. B. Porter. The abdomen was opened by a five-inch incision on

the outer border of the left rectus below the umbilicus. The intestines were found matted together and to the parietal peritoneum by dense adhesions. These were separated without difficulty, and the constriction identified in the sigmoid, which was normal in size and color. After freeing this bowel the cavity was walled off, and two inches resected on either side of the constriction, including the portion of the mesentery beneath. Only one small, non-malignant gland was discovered. A small gauze wick was left at point of suture.

On reaching ward,  $\frac{1}{4}$  gr. morphia was given every four hours. On the following day she took liquids without milk, and tincture opii deodorata, 5 min., three times daily. She had no pain and passed gas through tube in fistula. On third day wick was removed, and small rubber drain was inserted. Fourth day opium was omitted; soft solids begun. First movement by rectum on the seventh day. Was comfortable without distention. A warm enema introduced through fistula caused two free motions by rectum. Eleven days after operations stitches removed, as well as small drain. Fourteenth day, bed rest.

On Feb. 13, three weeks and a day after second operation: Fistula closed spontaneously; bowels moving normally. Patient was rapidly gaining weight.

The pathological report by Dr. W. F. Whitney is as follows: About 6 cm. of intestine, occupying the greater part of which was a deeply ulcerated cicatrized and infiltrating area about 3 cm. wide. The ulceration forms a deep crater-like excavation towards the mesenteric border.

Microscopical examination showed the normal mucous membrane to pass over into a growth of irregular tubular gland of large size and lined with columnar epithelium. These glands penetrated the fibrous tissue and formed the base of the ulcer mentioned above, and could be followed into the loose connective tissue beyond. Farther than this, there were in places, small round-cell infiltrations in the neighborhood of the vessels. The lymph gland removed from the mesentery failed to show any new growth.

*Diagnosis.*—Malignant adenoma.

It seems to me that the success in this case was largely due to the division of the relief in two operations: the first merely the relief of the obstruction by an artificial anus. The patient was in such a weak unnourished condition as to make it doubtful if she could have borne an intestinal resection. After the relief to the obstruction and subsequent building up of her strength, she seemed to feel the shock of the intestinal resection only in a mild degree.

Another interesting point was that after the obstruction was relieved by the artificial anus she had a number of normal dejections from the rectum.

At the first operation the descending colon and upper part of the sigmoid flexure were found very much hypertrophied.

(To be continued.)

## Medical Progress.

### PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

(Continued from No. 18, p. 487.)

#### COMMENTS UPON THE TABLE OF VACCINATIONS.

WHILE it is a comparatively easy matter to ascertain the number of deaths from smallpox in a given country, and, by comparing them with the population, to learn the standing of such country in its relation to neighboring countries in this respect, it is by no means an easy task to ascertain the relative extent and thoroughness with which vaccination is enforced in such countries. The reasons for this difficulty lie in the lack of uniformity (1) in the methods of executing the

Germany.—In Germany, which has undoubtedly the most perfect system of well-enforced vaccination in the world at the present day, a very accurate and careful report is made each year. The number of vaccinated persons is stated for each year, classified as primary and secondary vaccinations in the proportion of about 55% of the former and 45% of the latter. The number of persons subject to vaccination, both primary and revaccinations, is also stated, so that the number who are exempt may be known. The reasons for exemption are: (1) Persons (very few in number) who had had smallpox previous to presenting themselves for vaccination. (2) Persons who had been successfully revaccinated in the preceding year but had not attained the prescribed age for revaccination (for example, children of 9, 10 or 11 years of age). (3) Others who were successfully vaccinated in the year be-

#### VACCINATION IN DIFFERENT COUNTRIES.

	The German Empire. <sup>1</sup>	Scotland. <sup>2</sup>		Holland. <sup>3</sup>	England. <sup>4</sup>		Japan. <sup>5</sup>	Austria. <sup>6</sup>		British India. <sup>7</sup>	
	Vaccinations.	Successful vaccinations.	Per cent. of births.		Successful vaccinations of children.	Per cent. of children not accounted for.	Vaccinations.	Vaccinations.	Per cent. of the living born.	Successful vaccinations.	Per 1,000 of the total population vaccinated.
1885	—	—	—	—	757,714	5.8	4,325,437	678,677	77.3	4,703,214	—
1886	—	110,864	86.6	—	754,059	6.4	4,551,235	691,400	80.3	4,950,893	—
1887	—	107,077	86.0	—	735,960	7.1	3,066,426	694,357	79.3	5,202,595	—
1888	2,487,484	106,734	86.6	—	719,103	7.5	2,295,988	727,802	92.0	5,640,967	—
1889	2,485,485	104,931	86.4	—	707,161	9.9	1,817,382	703,897	79.1	5,709,462	25.7
1890	2,463,268	103,636	86.2	112,594	682,560	11.3	1,937,959	710,034	79.0	5,974,598	28.9
1891	2,462,603	107,482	86.3	118,209	693,117	13.4	2,170,194	708,621	88.4	5,862,683	26.8
1892	2,444,821	107,352	86.8	128,756	663,657	14.9	3,988,761	816,767	83.8	6,396,480	27.5
1893	2,433,779	108,117	86.0	123,870	661,513	16.1	3,907,828	751,780	83.8	6,716,134	28.9
1894	2,534,040	106,840	86.8	163,412	626,126	19.2	3,022,541	749,708	81.2	6,869,271	30.3
1895	2,513,900	108,035	86.7	109,194	624,690	20.5	—	734,069	81.4	7,223,591	32.0
1896	2,533,227	110,033	86.1	117,653	602,922	22.9	—	819,592	87.1	7,309,087	32.2
1897	2,630,176	108,378	84.0	119,830	578,639	22.7	—	742,200	78.2	7,144,474	31.5
1898	2,676,015	108,981	83.2	124,257	562,737	21.5	—	734,983	77.8	6,860,915	30.2
1899	—	109,261	86.5	125,709	—	—	—	—	—	7,437,916	32.9

#### SOURCES OF INFORMATION FOR THE FOREGOING TABLE.

<sup>1</sup> Germany. Die Ergebnisse des Impfgeschäfts im Deutschen Reich (1885-1898).

<sup>2</sup> Scotland. Reports of the Registrar General of Scotland (1836-1898).

<sup>3</sup> Holland. Reports of the Central Bureau of Statistics, 1900, p. 14.

<sup>4</sup> England. Reports of the Local Government Board (1885-1898).

<sup>5</sup> Japan. Reports of the Central Sanitary Bureau (1895-1896).

<sup>6</sup> Austria. Oesterreichisches Statist. Handbuch (1885-1900); also Statist. Sanitätswesen Wien., 1901.

<sup>7</sup> British India. Reports upon the Sanitary Measures in India (1885-1899).

measures adopted for securing vaccination, and (2) a similar lack of uniformity in reporting the results.

It has been the writer's object to bring together such facts in this table as were available from different countries in the closing years of the last century. The figures represent exclusively public vaccinations performed by public officials at the public cost, and do not include such vaccinations as may be performed by private physicians and are consequently not contributable to the public records.

It is much to be regretted that the relative figures in the table of vaccinations have so little relation to each other. This fact is due to the lack of uniformity in the methods of reporting such statistics in different countries.

fore, but were not present for inspection till the year of record.

The percentage of those vaccinated with humanized and with bovine lymph is also stated, the use of the latter having increased throughout the empire, from 77.4% of all public vaccinations in 1888, to 99.9% in the years 1896, 1897 and 1898.

The ratio of successful vaccinations ranged from 84.2 to 86.8% in primary vaccinations, and from 90 to 94% in revaccinations.

Every case of alleged harm from vaccination is made the subject of an official investigation and report.

The compulsory law of Germany is stated elsewhere. Sweden also has a compulsory law, but figures relating to vaccination were not available.

"Well-nigh all Sweden embraces vaccination with perfect confidence."<sup>8</sup>

*Scotland.*—The column of figures for Scotland represents the numbers of children successfully vaccinated in each year, and the second column represents the percentages of those who were born during the year, these vaccinations usually being about 85 to 86% of these births. The remainder consists of those who died before vaccination (about 9½%), those in whose cases vaccination was postponed (about 2%), those who were insusceptible in consequence of having had smallpox and from other causes (about ½%), and those who had removed from the district before vaccination (about 2.5%).

Moreover, it was testified at the Parliamentary inquiry upon vaccination<sup>9</sup> that "at no time during that period (1864-1894) has there been any considerable opposition in Scotland to the practice of vaccination."

*Holland.*—The figures for Holland represent only the public vaccinations in the years named. Of the whole number of vaccinated persons represented in this column 9.3% were under one year old, 36.1% were between 1 and 3 years old, 42.3% were between 3 and 6, 8.2% were between 6 and 12, and 4.1% were over 12. The mean population of Holland for the period was about four and three-fourths millions.

*Ireland.*—Figures for vaccinations in Ireland are not available. It was testified before the Royal Commission of 1889-1896 that "At no time in that period (1831-1894) has there been any considerable opposition in Ireland to the practice of vaccination. The proportion of the population which had at some time been vaccinated has steadily grown, down to the present time."<sup>10</sup> Mr. Grimshaw also testified that "the population of Ireland accepted vaccination gratefully."<sup>11</sup>

*England.*—In England, on the contrary, the country where vaccination had its origin, there has developed a very strong and organized opposition to the practice. The result of this opposition is shown in the figures presented for England, which show a decreasing number of children vaccinated,—from 757,714 in 1885 to 562,737 in 1898, the births meanwhile increasing in the same period from 894,270 to 923,165.

In the thirtieth annual report of the Local Government Board of England it is stated:<sup>12</sup> "The proportion of cases not finally accounted for in England and Wales for 1898 is 21.5%; in London, 33%; in the provincial returns, 19.6%."

This percentage, not accounted for, has risen in some of the English cities to as much as 80%, and even higher in Leicester and Northampton; while in Liverpool and Manchester the unvaccinated residuum is quite small.

This fact, together with the absence of any adequate law providing (as in Germany) for revac-

cination, is amply sufficient to account for the frequent outbreaks of smallpox in English cities. London is at this moment paying the penalty of the weak and absurd position of Parliament in refusing to enact a strong compulsory law.

The number of cases of smallpox admitted to the Metropolitan Hospitals of London in the weeks ended Jan. 4, 11, 18, 25, Feb. 1, 8, 15, 22, March 1, 8, 15, 22, 29, and April 5, 12 and 19 were as follows: 261, 305, 213, 203, 499, 287, 390, 502, 555, 450, 449, 389, 376, 274 and 328.

*Japan.*—In Japan the vaccinations consist of both primary and revaccinations, and appear to be influenced, as in some other countries, to a considerable degree by the prevalence of smallpox. The report of the Central Sanitary Bureau stated in 1890 that "one of the principal causes of the wide prevalence of smallpox in late years is no doubt the neglect to vaccinate. This neglect was largely owing to an insufficient supply of vaccine."

The government now maintains a plant for the production of animal vaccine, which is distributed throughout the country.

The deaths from smallpox had been reduced from 188,471 in the five years 1879-1883, to 27,259 in the five years 1892-1896, or about one-seventh as many.

The total number of vaccinations performed in Japan during the 10 years 1887-1896, was 29,435,665, of which 11,726,601 were primary vaccinations and the remainder were revaccinations. Of these, 83.9% of the primary vaccinations and 33.5% of the revaccinations were successful and a large part of the population is still unvaccinated.

*Austria.*—In Austria, where vaccination is not compulsory, the number of vaccinations has varied from as low as 77.3% of the living births to 88.8%. These figures, however, do not represent the successful vaccinations, which constituted about 90% of the total. This reduces the percentage of the living-born protected by vaccination to an average of about 73%, leaving an unprotected residuum of about 27%. In some districts the percentage of unvaccinated persons is stated to be as high as 72 or 73.

*British India.*—Vaccination in British India, as shown by the table, appears to be progressing favorably, the annual number having increased from nearly four and three-fourths millions in 1885 to nearly seven and one-half millions in 1899. Even this large number, however, leaves a large unvaccinated population, sufficient to account for the excessive smallpox mortality which is annually reported.

In the report of 1884,<sup>13</sup> it was stated that "1,828,059 of the vaccinations were those of children under one year of age, or less than one-fourth of the estimated births."

"This is the only safe way of testing the probable effect of vaccination, for whatever the number of vaccinations above one year may amount to, we have added year by year some millions of infants who are the most susceptible subjects to

<sup>8</sup> Royal Commission on Vaccination, Final Report, p. 765.

<sup>9</sup> Final Report of Royal Commission, 1896, p. 36.

<sup>10</sup> Royal Commission, Final Report, p. 38.

<sup>11</sup> Second Report, p. 89.

<sup>12</sup> P. clvi.

<sup>13</sup> Sanitary measures in India.



attacks of smallpox, only one-fourth of the number being protected. In that year (1884) one-sixth of all the deaths which occurred in British India were from smallpox."

*Sweden.*—In Sweden vaccination is practically compulsory, and the public vaccinations during the 30 years 1860-1889, averaged about 105,000 per year.<sup>14</sup>

*Mexico.*—A letter of Dr. Liceaga, president of the Board of Health of Mexico, states that the vaccinations in the Federal District of Mexico from 1872 to 1890 amounted to 276,090.<sup>15</sup>

#### VACCINATION LAWS OF DIFFERENT COUNTRIES.

##### *The Law of England.*

The statutes of England relating to vaccination have nearly all been enacted in the latter half of the nineteenth century and in the reign of Queen Victoria. The first somewhat crude act of 1840<sup>16</sup> was entitled "An Act to Extend the Practice of Vaccination," and required medical officers to report the numbers vaccinated by them.

An act of the next year, 1841, chap. 32, related chiefly to the matter of expenses of vaccination.

The act of 1853<sup>17</sup> was entitled "An Act to Extend and Make the Practice of Vaccination Compulsory." It required that districts should be assigned for vaccination; children were to be vaccinated within three or four months of birth, and were to be inspected on the eighth day. Provision was also made for postponing vaccination in certain cases and for keeping records of vaccination.

In 1867 a more comprehensive act was passed, and the following are the essential provisions of this act as amended by further acts of 1871, 1874, and 1898:

I. (1) The period within which the parent or other person having the custody of a child shall cause the child to be vaccinated shall be six months from the birth of the child, instead of the period of three months mentioned in § 16 of the vaccination act of 1867, and so much of that section as requires the child to be taken to a public vaccinator to be vaccinated shall be repealed.

(2) The public vaccinator of the district shall, if the parent or other person having the custody of the child so requires, visit the home of the child for the purpose of vaccinating the child.

(3) If a child is not vaccinated within four months after its birth, the public vaccinator of the district, after at least twenty-four hours' notice to the parent, shall visit the home of the child, and shall offer to vaccinate the child with glycerinated calf lymph, or such other lymph as may be issued by the Local Government Board.

(4) The public vaccinator shall not vaccinate a child if, in his opinion, the condition of the house in which it resides is such, or there is or has been such a recent prevalence of infectious

disease in the district, that it cannot be safely vaccinated, and in that case shall give a certificate (under § 18 of the vaccination act of 1867) of postponement of vaccination, and shall forthwith give notice of any such certificate to the medical officer of health for the district.

(5) Notwithstanding any regulation of any lying-in hospital or infirmary, or other similar institution, the parent of any child born in any institution shall not be compelled under such regulation or otherwise to cause or permit the child to be vaccinated at any time earlier than the expiration of six months from its birth.

II. (1) No parent or other person shall be liable to any penalty under § 29 or § 31 of the vaccination act of 1867, if within four months from the birth of the child he satisfies two justices, or a stipendiary, or metropolitan police magistrate, in petty sessions, that he conscientiously believes that vaccination would be prejudicial to the child, and within seven days thereafter delivers to the vaccination officer for the district a certificate by such justices or magistrate, of such conscientious objection.

(2) This section shall come into operation on the passing of this act, but in its application to a child born before the passing of this act there shall be substituted for the period of four months from the birth of the child the period of four months from the passing of this act.

(3) An order under § 31 of the vaccination act of 1867, directing that a child be vaccinated, shall not be made on any person who has previously been convicted of non-compliance with a similar order relating to the same child.

(4) No proceedings under § 31 of the vaccination act of 1867 shall be taken against any parent or person who has been convicted under § 29 of the said act on account of the same child, until it has reached the age of four years.

(5) Persons committed to prison on account of non-compliance with any order or non-payment of fines or costs under the vaccination acts shall be treated in the same way as first-class misdemeanants.

(6) Treats of the power to make rules as to duties and pay of the vaccinators.

(7) Local Government Board may in a threatened outbreak of smallpox require the provision of vaccine stations and make certain modifications in the provisions of the act.

(8) Lists to be kept in smallpox hospitals of names, etc., of patients and conditions as to vaccination.

(9) Provides for repeal of certain enactments.

(10) Act not to apply to Scotland and Ireland.

##### *The Law of Scotland.*

The following brief digest contains the essential provisions of the Scottish Vaccination Law.<sup>18</sup> This act is entitled "An Act to Extend and Make Compulsory the Practice of Vaccination in Scotland."

<sup>14</sup> See Report of the Royal Commission, vi, 753.

<sup>15</sup> Sixth Report, British Royal Commission, Appendix.

<sup>16</sup> Vict. 3 and 4.

<sup>17</sup> Vict. 16 and 17.

<sup>18</sup> Vict. 26 and 27, chap. 108.

Section 1 provides for the appointment of registered medical practitioners as vaccinators by the parochial boards.

(2) Provides for remuneration of the vaccinators, at not less than 1s. 6d. for each vaccination (37 cents) when performed within two miles of the vaccinator's residence, measured by the nearest public road, and 2s. 6d. for distances beyond two miles.

(3) Makes the vaccination districts of the same area as the registration districts.

(4) Parochial boards are to give notice of the names of the vaccinators.

(5) Parochial boards are to conform to certain regulations.

(6) They are to defray the expenses of the act.

(7) Vaccination and medical treatment are not to be considered as alms or charitable expenses.

(8) The father, mother or guardian of a child must have each child vaccinated within six months of its birth, and is to receive a certificate of the same.

(9) A medical practitioner may exempt a child from vaccination for two months, if the child is not in a fit and proper state to be vaccinated.

(10) A medical practitioner may certify that a child is insusceptible to vaccination.

(12) Certain modifications may be made to apply to insular districts.

(15) Registrars must keep records of vaccinations.

(16) Registrars receive a fee of 3d. for each record of vaccination.

(17) Prescribes penalties for neglect and non-compliance. Vaccinators are required to keep records of vaccinations. The act is accompanied with a series of blank forms for the required certificates.

*Ireland.*—The law relating to Ireland was enacted in the same year,<sup>19</sup> and also provided that children should be vaccinated within six months of birth.

This was amended in 1879, requiring the vaccination of children within three months of birth or three months after being brought into Ireland.

*Germany.*<sup>20</sup>—The present vaccination law of Germany, enacted in 1874, applies to all the German states. Under this act every child must be vaccinated in the year following the year of its birth, and as there are usually two periods in each year for the performance of public vaccination (May and September), it follows that nearly all children are vaccinated before arriving at the age of twenty months.

All pupils of public or private schools must be revaccinated in their twelfth year, unless they have had smallpox or have been successfully vaccinated within five years.

Vaccination may be postponed in the case of sick children.

Persons vaccinated must be presented for inspection not earlier than the sixth nor later than the eighth day after vaccination.

Vaccination is gratuitous, and the places for vaccination and inspection must be within 5 kilometres of each other (about three miles).

Lists of persons to be vaccinated must be furnished to the vaccinators, who must also prepare lists of the persons successfully vaccinated and forward them to the government authorities.

The governments of the different states must establish *dépôts* for producing, storing and distributing the vaccine lymph, which is furnished gratuitously.

Certificates of successful vaccination are given to the vaccinated persons, which are requisite for admission to school.

The place for vaccination must be clean, well lighted and well ventilated. Children presented for vaccination must be clean, and dirty children are to be sent home by the person in charge.

*Sweden.*<sup>21</sup>—Vaccination has been compulsory in Sweden since 1853. Children must be vaccinated before the age of two years. Inspection must also be made in order to be assured that vaccination is successful.

No one can be admitted to a public school or public establishment unless he has had smallpox or been successfully vaccinated.

Certain persons have authority to vaccinate, chiefly physicians, sacristans and midwives.

Preference as to time for vaccination is given to May and September.

Certain physicians are nominated whose duty it is to maintain a constant supply of vaccine.

If anyone who has neglected vaccination is attacked with smallpox, and the infection should be propagated through this unfortunate omission, he will be liable to imprisonment.

*Austria.*—There is no direct compulsory vaccination in Austria.

*Denmark.*—Vaccination is compulsory in Denmark for all children, and must be performed before they attain the age of seven years. (Law of Feb. 4, 1871.)

*Holland.*—In Holland vaccination is not legally obligatory, but is practically enforced by the regulations regarding admission to school.

*Italy.*—A law of Jan. 1, 1892, provides for the production and preservation of vaccine lymph.

All children must now be vaccinated within the half-year succeeding their birth. Certain exemptions are specified—children who have had smallpox, etc.

Persons who have not been revaccinated since they were eight years old are excluded from schools and workshops until they are revaccinated.

*Portugal.*—Vaccination is not obligatory, and smallpox is of frequent occurrence.

*Spain.*—Vaccination is not obligatory, except for soldiers.

*Switzerland.*—At present vaccination is not compulsory in Switzerland. Dr. Schmid, federal sanitary reporter, says: "Faith in the protective

<sup>19</sup> Vict. 26 and 27.

<sup>20</sup> Reichs-Impfgesetz, April 8, 1874.

<sup>21</sup> Palmberg: Public Health and its applications, p. 447.

power of vaccination is proved by the fact that the population still have recourse to vaccination in times of threatened outbreaks of smallpox."

*France.*—Vaccination is not compulsory in France. The Comité Consultatif d'Hygiène is bound to encourage it. The Academy of Medicine and the French Society of Hygiene take an active part in promoting vaccination. The production of vaccine lymph is not under governmental control, as in most other countries.

Vaccination is required as a preliminary to entrance to certain public establishments.

*Japan.*—Children must be vaccinated within a year after birth, and the vaccination is to be repeated a second and third time at intervals of five years.

*Egypt.*—By a decree of 1890 the vaccination of infants is made obligatory. The infant must be presented at the office of the health board and inspected within a week, and a certificate is then given, if successful vaccination is found. Postponement may be made in cases of illness.

Records of vaccinations must be kept.

#### STATE LAWS RELATIVE TO VACCINATION.<sup>22</sup>

The laws of the different states, although aiming at the same end, are very dissimilar in their methods of aiming at the result—the general vaccination of the population.

In Connecticut<sup>23</sup> "the health officers may adopt such measures for the general vaccination of the inhabitants of their respective towns as they shall deem proper and necessary to prevent the introduction or arrest the progress of smallpox."

In Michigan<sup>24</sup> boards of health may order the vaccination of all children or others who have not been vaccinated within five years.

In North Carolina<sup>25</sup> cities, towns and counties may make rules requiring vaccination, and a similar rule is found in Virginia,<sup>26</sup> Colorado<sup>27</sup> and Kentucky.<sup>28</sup> In South Carolina<sup>29</sup> the State Board of Health may order vaccination.

In some states (Colorado, Indiana and North Carolina) the laws only provide for vaccination during the prevalence of smallpox.

In New Mexico the governor may order vaccination and appoint vaccinators. In Georgia, county and municipal authorities may order vaccination.

The vaccination of school children has very generally been considered a practical method of securing the vaccination of the larger part of the population at a very susceptible period of life. It is argued, and rightly, that it is not only the right but the duty of the state to protect its schools against the invasion of communicable disease, and that this method of requiring the vaccination of pupils is a simple and effectual means of preventing the invasion of the schools by smallpox.

The vaccination of school children is required in many states and has been declared constitutional in Indiana,<sup>30</sup> Pennsylvania,<sup>31</sup> New York<sup>32</sup> and California.<sup>33</sup>

In Connecticut, Maine, New Jersey and Ohio permissive laws are in force, authorizing the exclusion of unvaccinated children from the schools.

The attendance at school of unvaccinated persons is forbidden by law in California, Delaware, Florida,<sup>34</sup> Iowa,<sup>35</sup> Illinois,<sup>36</sup> Maryland, Massachusetts, New Hampshire, North Dakota,<sup>37</sup> New York, Pennsylvania and Rhode Island, with certain exceptions.

In Florida, Iowa, Kentucky, Maryland, Massachusetts and Minnesota the laws also require the vaccination of all children irrespective of school attendance.

In Florida no manufacturer can admit an unvaccinated employee. In Massachusetts provision is also made for the vaccination of persons in manufacturing establishments and in public institutions. In Connecticut and Maine workers in paper mills must be vaccinated. In Maryland, fruit packers and growers and fish packers cannot keep unvaccinated persons in their employ.

In a few states bovine lymph only can be used in public vaccinations.

In California, Connecticut and New York legal provision is made for gratuitous vaccination of school children.

In Maine, Michigan, New Hampshire, Vermont and Virginia the township is authorized to provide free vaccination, but in Delaware, Florida, Kentucky, Maryland, Massachusetts, New Jersey, Ohio and Rhode Island it is required of the local authorities.

#### REQUIREMENTS AS TO VACCINATION IN THE PUBLIC SCHOOLS OF NINETEEN CITIES.<sup>38</sup>

A physician's certificate of vaccination is required in the following cities:

New York. (Rules and Regulations, Manhattan and the Bronx, 1900, p. 64.)

Chicago, unless applicant has had smallpox. (Rules and Regulations, 1898, p. 30.)

Philadelphia, unless applicant has had smallpox. (Rules, 1897, p. 292.)

Boston, except where physician certifies that child is unfit for vaccination. (Rules and Regulations, 1900, p. 44.) This is also a State law and applies to every city and town in Massachusetts.

Cleveland, vaccination or other protection. (Handbook, 1899-1900, p. 62.)

Buffalo. (Charter and Ordinances, 1896, p. 231.)

Detroit. (Rules, 1895, p. 24.)

Milwaukee. (Rules and Regulations, 1891, p. 44.)

Newark, unless child has had smallpox. (Report of 1899, p. 365.)

Providence. (By-Laws, 1897, p. 20.)

<sup>22</sup> See Report of State Board of Health of Indiana, 1894, p. 334.

<sup>23</sup> See Report of State Board of Health of Pennsylvania, 1895, ii, 82.

<sup>24</sup> See Report of Department of Health of Brooklyn, 1895.

<sup>25</sup> See Report of State Board of Health, 1889 and 1890, p. 40.

<sup>26</sup> In places of 2,000 inhabitants.

<sup>27</sup> In these States it is a rule of the State Board of Health as a part of its organic law.

<sup>28</sup> From Report of U. S. Commission of Education, 1899-1900, ii, 2561.

<sup>29</sup> Compiled chiefly from Chapin's Municipal Sanitation, 1901.

<sup>30</sup> General Statutes of Connecticut, 1888, Sec. 2,507.

<sup>31</sup> Compiled Laws, 1897, Sec. 4,465.

<sup>32</sup> Act of March 1, 1893, Sec. 23.

<sup>33</sup> Code of 1887, Sec. 1,733.

<sup>34</sup> Act of April 13, 1893, Sec. 42.

<sup>35</sup> Statutes of 1894, Sec. 4,610.

<sup>36</sup> Chapter 78, Laws of 1899.

## OTHER PROVISIONS.

St. Louis, children admitted, provided they have been vaccinated. (Rules, 1897, p. 78.)

Baltimore, vaccination or other protection from smallpox required. (Rules, 1900, p. 15.)

San Francisco, satisfactory evidence of vaccination required. (Rules, 1900, p. 38.)

Cincinnati, satisfactory evidence of vaccination required. (Manual, 1895, p. 198.)

New Orleans, satisfactory evidence of vaccination required. (Rules, 1896, p. 5.)

Washington, vaccination or other protection from smallpox required. (Rules, 1900, p. 1.)

Jersey City, vaccination or other protection from smallpox required. (Report, 1896, p. 148.)

Louisville, evidence of vaccination or other protection required. (Manual, 1898, p. 23.)

Minneapolis, evidence of vaccination, or physician's certificate that child should not be vaccinated, is required. (Annual Report, 1900, p. 134.)

(To be continued.)

## Recent Literature.

*A System of Physiologic Therapeutics.*—A Practical Exposition of the Methods, Other than Drug-Giving, Useful in the Prevention of Disease and in the Treatment of the Sick. Edited by SOLOMON SOLIS COHEN, A.M., M.D., Professor of Medicine and Therapeutics in the Philadelphia Polyclinic. In eleven octavo volumes. Volume VI: Dietotherapy and Food in Health. By NATHAN S. DAVIS, JR., A.M., M.D., Professor of the Principles and Practice of Medicine in Northwestern University Medical School; Physician to Mercy Hospital and Wesley Hospital, Chicago; Member American Medical Association, etc. Philadelphia: P. Blakiston's Son & Co. 1901.

The sixth volume of this excellent series discusses the highly important subject of food in health and disease. The aim of the author has been to make as practical a book as possible upon dietetics, and that he has succeeded a perusal of the pages amply testifies. One hundred and seventy pages are taken up with a discussion of the general principles underlying diet, and diet in health. A large amount of information with which all physicians should be familiar is presented in a systematic and readable way. The second part of the book concerns itself with the question of diet in disease; the writer in this section has seen fit to preface many of his remarks by a brief statement of the symptoms of the disease under consideration, which goes far toward impressing upon the mind of the reader his various warnings and suggestions. In general, the book is admirably conceived and put together, and is a fitting sequel to those which have gone before in this noteworthy attempt to rationalize therapeutic procedures.

GUATEMALA has the highest death-rate of any country in the world, 41 per 1,000. In New Zealand the mortality is only 11 in the 1,000.—*Medical Record*.

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## EXACT METHODS OF DIAGNOSIS.

THE very great desirability of quick and at the same time accurate methods of diagnosis will be generally admitted. It will also be granted that those methods are best which combine to the greatest possible degree these two elements. To be quickly accurate is what the clinician is striving for and what he is frequently absolutely incapable of attaining. Often there is time and to spare in arriving at a conclusion regarding the nature of disease; on the other hand, expedition is frequently necessary and always a satisfaction. Mechanical methods of diagnosis, to be practically useful must be simple, easily carried out after a moderate amount of training, and devoid of great expense. Whatever the diagnostic value of the x-rays may prove to be, for example, in internal medicine, it is clear that, unless the apparatus for producing them can be enormously simplified, they can never come into general use in the hands of the practitioner or consultant. As a routine practice it is altogether probable that this means of diagnosis will remain prohibited by expense and cumbersomeness.

Another and better example is the various investigations of the blood which a general physical examination apparently now demands. In hospital practice the determination of the condition of the blood has become almost as much of a routine of examination as the urine. This work is largely mechanical, laborious and consumes much time; it is therefore delegated to house officers. In the general fields of practice, where assistance is not so easily to be had, we suspect that the blood remains neglected, except in the exceptional instances when other signs point strongly toward some primary disease of the blood itself. The reasons for this are obvious: first, such examinations are rarely of more than contributory importance; and, secondly, it has up to the present

been so tedious a process, requiring instruments of considerable expense and much delicacy, that the practitioner has simply neglected the whole matter. In the rush and hurry of an ordinary practice this will always be the case. The more refined laboratory methods will be laid aside until they are made simple and therefore practically applicable. It is therefore gratifying to see new methods appearing from time to time which aim toward a maximum of simplicity and accuracy. The laboratory investigator certainly cannot render a greater service to practical medicine than to devote his knowledge and energies toward this end. The recent introduction of the so-called Tallquist Hemaglobin Scale is an instance in point. Just why some such simple means has not long since been discovered for determining so important a constituent of the blood, no one knows, but like every other highly useful discovery the wonder grows that it had not been thought of before. It is now possible for anyone to form an immediate estimate of the amount of hemaglobin, information which is always of value in general clinical work. The older method, inaccurate and annoyingly time-taking, will no doubt be wholly replaced by this, except when a control is needed. Other things being equal, the simpler method is sure to replace the more complex. We note also with gratification that Drs. Einhorn and Laporte of New York (*Medical News*, April 19, 1902) have recently published a new method of approximately estimating the number of blood corpuscles from stained specimens. For the details of the procedure we would refer our readers to the original article.

The writers conclude as follows:

First, the whole procedure is a very simple one. Neither pipettes nor diluting solutions are needed. Every physician can easily carry a few cover-glasses in his pocket and thus always has at hand all the utensils necessary for obtaining a specimen for counting.

Second, the method is a very rapid one. If we wish to determine the number of leucocytes only, we can reach an accurate estimate in five or even three minutes after staining. If besides the white the red cells also have to be counted, which of course is a more tedious procedure, it will take from ten to fifteen minutes. Those who have had experience in blood-counting will grant that an accurate count either of the red or white alone according to the Thoma-Zeiss method will with the necessary subsequent careful cleaning of the pipette take not less than half an hour, usually longer.

This method of cover-glass counting furthermore allows us to obtain simultaneously an idea about the condition of the blood as manifested in the stained specimen. It is easy, especially when counting the leucocytes alone, to combine a differential leucocyte count with it, which also tends to save time.

Finally, by this method we are enabled by reason of its rapidity and simplicity to count more frequently, from hour to hour if necessary. No one will doubt that this may occasionally be of great diagnostic and prognostic value in cases of acute appendicitis or simi-

lar acute cases in which pus may be suspected and in which we have to deal with a persistent or progressive hyperleucocytosis.

We have no experience whatever with the method, but if, as claimed, it is comparatively simple and quickly accomplished, it is safe to prophesy that it will gain many adherents among those who shun the comparatively laborious method now in vogue. Another example of the value of rapidity in diagnosis is given in the use of the freezing microtome now generally available in hospitals, though naturally still beyond the reach of the practitioner. This, with the rapid methods of mounting, fixing and staining have been of the very greatest service in the immediate diagnosis of new growths and various pathological products. In general, if we are to bring laboratory methods into closer accord with observation in clinical work, we must endeavor on the laboratory side continually to simplify, and thus render generally useful, exact methods of diagnosis. Badly named as it is, the development of so-called "clinical pathology" represents the need of practically applicable methods of exact diagnosis, and will, no doubt, do much to bridge the gap between pathological anatomy and the clinical study of disease.

#### THE BOSTON FLOATING HOSPITAL.

For a number of years certain physicians and philanthropic persons have maintained a floating hospital for the city of Boston during the hot months of summer. The work has been prosecuted with great difficulty owing to the somewhat improvised and inadequate character of the boat which alone was available. In spite of these drawbacks a well-equipped hospital has been carried on which has led to a considerable amelioration in the condition of the smaller children of the crowded sections of the city. As is natural in such cases the number of patients has rapidly outgrown the capacities of the boat, particularly since it has become advisable to keep certain of the sicker children more or less permanently on board. We are glad, therefore, to record the fact that a very much improved hospital boat is projected, the plans for which have already been drawn. In designing this new boat, facilities for the treatment of all varieties of children's diseases have been provided for, together with ample room for mothers and for the isolation of those cases demanding such special care.

The vessel is to have four decks. Forward of the main deck there are to be two wards, each with sixteen beds, together with the necessary examining and treatment rooms. Further aft is a room specially designed for the modification of milk. Various offices and special rooms for doc-

tors, nurses and guests, with the requisite toilet facilities, are also provided for on this deck. On the lower deck the contagious wards are located. In this part of the boat there is also an atmospheric plant, making it possible to maintain an even temperature whatever the external conditions may be. An autopsy room and morgue are also provided for. The upper deck has four large wards, each with sixteen beds and the necessary accessories. The deck above this is to serve for the use of so-called out-patients, which no doubt will form the greater contingent of the total number of children treated.

It is proposed, as the brief sketch we have given would indicate, to make this an entirely adequate hospital for the purpose for which it is designed. We can easily see that this may be the case, inasmuch as all that previous experience and foresight can accomplish will be brought to bear on these new plans. It is also self-evident that even this greatly enlarged hospital will soon be wholly inadequate for the demands made upon it. We are, however, probably not overstepping the bounds of probability when we say that increased facilities even to the multiplication of such floating hospitals will be provided as the urgent demand arises. Certainly the charity is one to be fostered and encouraged.

#### MEDICAL NOTES.

**OFFICERS OF THE ASSOCIATION OF AMERICAN PHYSICIANS.**—The Association of American Physicians has elected the following officers for the coming year: President, Dr. James Stewart, Montreal; Vice-President, Dr. William T. Councilman, Boston; Secretary, Dr. Henry Hun, Albany, N. Y.; Treasurer, Dr. J. P. C. Griffith, Philadelphia; Recorder, Dr. S. Solis Cohen, Philadelphia, and Councillors, Dr. Charles G. Stockton and Dr. Walter Reed.

**DIPHTHERIA IN BERLIN, GERMANY.**—It is reported that owing to the use of antidiphtheritic serum there has been the lowest death-rate from diphtheria in Berlin ever recorded. The deaths in 1901 were 469. Previously the deaths ranged from 1,800 to 2,600 a year.

**CHOLERA IN THE PHILIPPINES.**—A despatch dated May 5 states that there have been in Manila 754 cases and 603 deaths from cholera, while the provinces report 2,153 cases and 1,583 deaths.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, May 7, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases:

Diphtheria 41, scarlatina 18, measles 166, typhoid fever 8, smallpox 22.

**BOSTON MORTALITY STATISTICS.**—The total number of deaths reported to the Board of Health for the week ending May 3 was 225, as against 234 the corresponding week last year, showing a decrease of 9 deaths, and making the death-rate for the week 20.5. The number of cases and deaths from infectious diseases is as follows: Diphtheria 33 cases, 7 deaths; scarlatina 20 cases, 1 death; typhoid fever 12 cases, 1 death; measles 158 cases, 4 deaths; tuberculosis 19 cases, 26 deaths; smallpox 28 cases, 4 deaths. The deaths from pneumonia were 26; whooping cough, 1; heart disease, 14; bronchitis, 3; marasmus, none. There were 11 deaths from violent causes. The number of children who died under 1 year was 42; under 5 years, 70; persons more than 60 years, 56; deaths in public institutions, 78.

**ANNUAL MEETING OF NORFOLK SOUTH DISTRICT MEDICAL SOCIETY.**—The annual meeting of the Norfolk South District Medical Society was held May 2, at the United States Hotel, Boston. The annual address was delivered by the president, Dr. J. C. Fraser, on the subject "The History of Medicine." The election of officers resulted as follows: President, Dr. J. C. Fraser; Vice-President, Dr. W. A. Drake; Secretary and Treasurer, Dr. S. W. Ellsworth; Commissioner of Trials, Dr. N. S. Hunting; Councillors, Drs. N. S. Hunting, C. S. Adams, E. N. Mayberry and V. M. Tirrell; Censors, Drs. E. N. Mayberry, W. A. Drake, F. C. Granger, J. F. Welch and J. A. Gordon.

**BILL TO PERMIT THE STATE TO MAKE ITS OWN VACCINE VIRUS.**—The Committee on Public Health gave a hearing May 5, at the State House, on the resolve of Representative Adams of Melrose that the State Board of Health be authorized and requested to investigate and report a plan for production and distribution of pure vaccine lymph for free use in this Commonwealth, the report to be made to the General Court as soon possible. Dr. H. P. Walcott, chairman of the State Board of Health, spoke in favor of the resolve, which was also supported by Dr. S. W. Abbott, secretary of the Board.

**ORGANIZATION OF THE BOSTON BOARD OF HEALTH.**—The Boston Board of Health has organized by the choice of Dr. Samuel H. Durgin as chairman and Mr. Charles E. Davis as secretary. Dr. Durgin has held the position of chairman since 1877.

**A VICTIM OF "CAISSON" DISEASE.**—A negro employed in the East Boston tunnel construction work is reported to have died last week from so-called "Caisson" disease.



## NEW YORK.

## DEATH-RATE IN NEW YORK CITY IN 1901.—

From statistics just issued by the Health Department it appears that the total number of deaths in the city during the year 1901 was 70,720 and that the death-rate was exactly 20 per thousand of the estimated population. The death-rate for each of the five boroughs was as follows: Manhattan, 20.55; the Bronx, 21.60; Brooklyn, 19.25; Queens, 17.20; Richmond, 19.51. In the borough of the Bronx, where the mortality is the heaviest, it is to be noted that the death-rate is increased by the presence of several large institutions, the great majority of whose inmates are residents of the other boroughs. The statistics of the principal contagious diseases are as follows: Diphtheria and croup, cases reported, 12,329; deaths, 2,068. Measles, cases reported, 11,990; deaths, 449. Scarlet fever, cases reported, 16,692; deaths, 1,162. Smallpox, cases reported, 1,964; deaths, 410. Typhoid fever, cases reported, 2,748; deaths, 727. The number of deaths from some of the other principal diseases was as follows: Phthisis, 8,135; pneumonia (not including bronchopneumonia, from which there were 2,621 deaths), 6,547; nephritis and Bright's disease, 5,500; cancer and other malignant growths, 2,463; organic diseases of the heart, 4,626; diarrhea and enteritis (under two years of age), 5,796; malarial fevers, 195; influenza, 856. During the year there were 4,636 violent deaths, of which 713 were suicides.

ITEMS OF NEW YORK'S BUDGET.—On April 30 the budget for the city's expenses for the present year was finally passed upon by the Board of Estimate and Apportionment. The Department of Health gets an appropriation of \$984,391, which is about \$5,500 larger than that in the original budget. The appropriation for Bellevue and the other public hospitals under the charge of the new Hospital Commission is \$572,086, an increase of \$110,000, and that for the Department of Public Charities is \$1,773,960, an increase of \$175,076. These increased allowances were found by the Board to be necessary in order that the work of the Health Department might be efficiently carried on and the city's sick and poor be adequately cared for.

JEWISH HOSPITAL FOR BROOKLYN.—A largely attended meeting was held on April 27 at Temple Israel, Brooklyn, for the purpose of increasing the interest in the proposed Jewish Hospital in that borough. It is planned to raise at least \$100,000 with which to begin the work of building. About \$35,000 has already been subscribed, and it is expected that \$70,000 will later be raised. The hospital society has some 800 members who

are interested in the project, and it is at present conducting a dispensary on Johnson Avenue, Williamsburgh.

AN ELECTRIC AMBULANCE LAUNCH.—The Margaret, the first electric ambulance launch ever built, and the gift of Isaac N. Seligman to St. John's Guild, was launched at Bayonne, N. J., on May 2, and made a successful trial trip. This water ambulance is to be used in transferring sick children from the Guild's floating hospitals to the Seaside Hospital at New Dorp, Staten Island, provision being made for lowering a stretcher directly from the hospital barge through the canopy of the launch.

BEQUEST FOR HOSPITAL BED.—By the will of Mrs. Isadora Ritter \$5,000 is left to St. John's Hospital, Brooklyn, to endow a bed in memory of her sons, Joseph and Judson Dimoch.

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**Obituary.**


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## ZABDIEL BOYLSTON ADAMS, M.D.

ZABDIEL BOYLSTON ADAMS, M.D., descended from Zabdiel Boylston Adams, Harvard (1791), and from Zabdiel Boylston Adams, Harvard (1813), and M.D. (1816), died May 1, 1902, at the age of seventy-two years and eight months.

He was a graduate of Bowdoin College, and of the Harvard Medical School in 1853. He practised in Boston, but on the breaking out of the Civil War he joined the army. He was surgeon of the Thirty-second Massachusetts Regiment, was a captain in the Fifty-sixth Regiment, and was commissioned major by Governor Andrew. He was wounded several times and carried his lameness until his death. He was for three months in Libby prison. Returning from the war somewhat shattered in health, he settled in Roxbury, where he was one of the charter members of the Roxbury Society for Medical Improvement. In 1867 he removed to Framingham, where he passed thirty-five years as a practitioner; he was many years medical examiner, and filled other offices of trust and responsibility.

He was chosen councillor of the Massachusetts Medical Society in 1872, 1873 and 1874, and from 1886 to 1902. He was elected vice-president in 1893 and 1894. In 1887 he delivered the annual oration. Honored thus by his medical brethren, he shared equally the love and esteem of his fellow-citizens.

An optimist by temperament he was warmly enthusiastic in all that concerned the welfare of his profession. He was an ardent upholder of vaccination.

We recall with interest his advocacy of the lancet, at a recent meeting of the Massachusetts Medical Society, that disused instrument of the old armamentarium, in the treatment of some forms of sthenic pneumonia.

His good-fellowship rendered him a beloved and acceptable fellow of the Loyal Legion. To its publications he contributed an exceedingly readable sketch of his army experiences.

Born of an old New England stock he maintained its prestige in his personal appearance and his genial manners. An honorable professional career was terminated by his accidental death—untimely for his friends, but not premature as to age. He was an old-fashioned doctor and a characteristic representative of the passing generation.

His widow, son and daughter survive him. The son, the fourth of the name, is entering on his father's profession.

## JOHN HOMANS, 2d, M.D.

JOHN HOMANS, 2d, M.D., died in Boston on May 4 at the age of forty-five. Although for several years there had been symptoms of renal disease, up to three months ago he had not been prevented from leading an active life. Dr. Homans, who followed his grandfather, father and uncle in the pursuit of medicine, was the son of Dr. Charles D. Homans. He graduated from Harvard College in the class of 1878, and immediately entered the medical school. He received the degree of M.D. in 1882, after a year of service as surgical house-officer in the Massachusetts General Hospital. He spent two years in study in Europe, and returned to Boston, where he has since practised medicine.

He was greatly interested in furthering the needs of the Medical Library, having for years given much time and labor to this work, and as a member of the executive committee of the Medical Library Association, his enthusiasm and zeal contributed largely to the successful completion of the new building erected on the Fenway. He was devoted to the cause of cremation from an early date, when public interest was slow in awakening, and in his position as secretary of the Massachusetts Cremation Society, added his full measure to developing the standing held by this movement today. At the time of his death he was president of the Massachusetts Charitable Eye and Ear Infirmary, having served on the board of directors for several years. He was also physician and director of the Home for Aged Men, and of the Boston Asylum and Farm School for Indigent Boys; assistant medical director of the New England Mutual Life Insurance Company, and a trustee of the Massachusetts Humane Society. In addition to his medical interests he was a keen student of military history. He was a member of the Military Historical Society and the New England Historic and Genealogical Society. He was a prominent member of the Society of the Cincinnati, in which he had held the office of assistant secretary of the Massachusetts Chapter for many years.

Dr. Homans has for nearly twenty years been identified with the active medical and charitable work of Boston, and never more so than just before his death. Always loyal to the profession, he was a zealous guardian of its dignity and honor. Whenever opportunity offered he worked for the public good with genuine interest and enthusiasm. Unsparing of himself in his thought for his patient, he was always ready to give not only his time and skill but his friendship, and with it invaluable comfort and encouragement. The loss to the profession and to the community will be keenly felt.

## FREDERICK A. CASTLE, M.D.

DR. FREDERICK A. CASTLE of New York died from intestinal cancer on April 28, in the sixtieth year of his age. About a week before his death he was removed to the Roosevelt Hospital, where he was twice operated upon in the hope of prolonging his life. A short time after the second operation he succumbed. While a medical student at Bellevue Hospital Medical College, at the beginning of the Civil War, Dr. Castle helped to organize what was known as the Medical Cadet Corps, and was sent with it to the front. Later, he left that organization and served for two years in the navy. He then returned to New York and resumed his medical studies, and was graduated from Bellevue in 1866. He became widely known in the profession through his editorial work in connection with several medical journals, and for a time occupied the chair of materia medica and therapeutics in Bellevue Hospital Medical College. He was largely interested in the erection of the Academy of Medicine building on West 43rd Street, being a trustee and afterwards the treasurer of the Academy. Outside of his profession he was interested in bookbinding and designing, and he planned the "Dutch Room" of the Grolier Club, of which he was a prominent member.

## METEOROLOGICAL RECORD

For the week ending April 26, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		Weather		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.		8.00 P.M.
S...20	30.06	51	60	42	85	78	82	S	S	10	13	F.	O.	T.
M..21	30.04	56	65	48	75	72	74	S	W	10	10	O.	O.	.01
T..22	29.98	50	58	42	73	93	83	W	N	6	11	O.	O.	
W..23	29.84	56	71	41	93	64	78	S	E	3	21	C.	C.	
T..24	30.05	56	66	46	67	53	60	W	W	20	10	C.	C.	
F..25	30.24	52	61	42	61	60	60	N	W	12	12	R.	O.	
S...26	29.80	56	67	45	96	79	88	S	E	8	29	C.	C.	.36
Mean	30.00		64	44		75								.37

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, APRIL 26, 1902.

CITIES.	Population Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Cerebro spinal meningitis.	
New York..	3,665,352	1,419	447	23.25	13.67	3.59	.42	.35	
Chicago..	1,852,828	—	—	—	—	—	—	—	
Philadelphia..	1,349,624	473	103	24.50	11.40	1.69	4.64	.42	
St. Louis..	603,717	—	—	—	—	—	—	—	
Baltimore..	525,330	214	54	29.20	13.66	.94	1.41	—	
Cleveland..	411,826	—	—	—	—	—	—	—	
Huffalo..	375,742	—	—	—	—	—	—	—	
Pittsburg..	341,401	162	42	28.44	17.28	.62	8.02	—	
Cincinnati..	332,032	—	—	—	—	—	—	—	
Milwaukee..	304,975	—	—	—	—	—	—	—	
Washington..	289,537	—	—	—	—	—	—	—	
Providence..	185,870	50	18	20.40	10.20	—	1.70	—	
Boston..	568,730	207	49	22.22	15.94	1.93	.48	—	
Worcester..	127,337	30	11	10.00	13.33	3.33	—	—	
Fall River..	111,872	26	10	23.10	19.25	—	—	2.85	
Lowell..	99,574	48	11	8.33	16.66	2.08	—	—	
Cambridge..	96,334	27	6	14.80	11.10	3.70	—	—	
Lynn..	71,144	30	11	13.33	6.67	—	—	3.33	
Lawrence..	67,275	15	1	13.33	26.66	—	—	—	
Springfield..	66,854	23	3	21.74	26.09	—	—	—	
Somerville..	65,682	14	8	21.42	42.84	—	—	—	
New Bedford..	65,574	29	8	10.34	20.68	—	—	—	
Holyoke..	48,065	9	2	—	11.11	—	—	—	
Brockton..	43,208	4	—	25.00	—	—	—	—	
Haverhill..	40,392	12	3	33.33	16.67	8.33	—	—	
Salem..	36,667	13	1	7.70	15.40	7.70	—	—	
Newton..	36,836	9	1	33.33	—	—	—	—	
Malden..	35,890	4	1	25.00	—	—	—	—	
Chelsea..	35,264	15	4	20.00	—	—	—	—	
Fitchburg..	33,848	10	4	40.00	—	—	—	—	
Taunton..	32,759	11	1	9.09	9.09	—	—	—	
Everett..	27,114	15	3	20.00	—	6.67	—	—	
North Adams..	26,583	8	—	12.50	—	—	—	—	
Gloucester..	26,121	6	1	—	—	—	—	—	
Quincy..	25,307	11	3	18.18	18.18	9.09	—	—	
Waltham..	24,612	2	—	—	—	—	—	—	
Pittsfield..	22,311	3	—	—	—	—	—	—	
Brookline..	21,679	2	—	—	—	—	—	—	
Chicopee..	20,390	4	1	25.00	25.00	—	—	—	
Medford..	20,014	6	1	50.00	—	—	—	—	
Newburyport..	14,478	3	1	33.33	33.33	—	—	—	
Melrose..	13,384	4	2	—	—	—	—	—	
Westfield..	13,038	5	—	40.00	—	—	—	20.00	
Attleboro..	12,846	—	—	—	—	—	—	—	
Adams..	12,813	—	—	—	—	—	—	—	
Milford..	12,516	—	—	—	—	—	—	—	
Framingham..	12,109	7	—	14.30	28.60	—	—	—	
Peabody..	11,957	—	—	—	—	—	—	—	
Revere..	11,894	5	—	20.00	—	—	—	—	
Gardner..	11,544	1	—	—	—	—	—	—	
Weymouth..	11,337	5	1	40.00	—	—	—	—	
Southbridge..	10,838	3	2	—	66.67	—	—	—	
Watertown..	10,600	4	1	25.00	25.00	—	—	—	
Plymouth..	10,336	—	—	—	—	—	—	—	

Deaths reported 2,973; under five years of age, 831; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 677, acute lung diseases 406, consumption 335, scarlet fever 27, erysipelas 18, typhoid fever 46, whooping cough 27, cerebrospinal meningitis 10, smallpox 25, measles 42, diarrheal diseases 57.

From whooping cough, New York 13, Philadelphia 4, Baltimore 5, Pittsburg 2, Boston 2, Worcester 1. From scarlet fever, New York 17, Philadelphia 4, Pittsburg 3, Boston 1, Fitchburg 2. From erysipelas, New York 5, Philadelphia 5, Baltimore 1, Pittsburg 3, Boston 3, Lowell 1. From typhoid fever, New York 6, Philadelphia 22, Baltimore 3, Pittsburg 13, Providence 1, Boston 1. From measles, New York 22, Philadelphia 3, Pittsburg 9, Boston 3, Lynn 2, Somerville 1, Chelsea 2. From smallpox New York 13, Philadelphia 6, Baltimore 2, Boston 3, Watertown 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending April 12, the death-rate was 17.4. Deaths reported 4,971; acute diseases of the respiratory organs (London) 299, whooping cough 145, diphtheria 85, measles 161, smallpox 94, scarlet fever 45.

The death-rate ranged from 5.5 in Hornsey to 28.5 in Middleborough; London 17.3, West Ham 20.4, Croydon 11.7, Brighton 13.8, Portsmouth 21.4, Southampton 13.1, Bristol 15.7, Birmingham 20.9, Leicester 15.9, Nottingham 13.7, Birkenhead 19.5, Liverpool 20.1, Manchester 20.1, Salford 18.9, Bradford 15.4, Leeds 18.6, Sheffield 15.0, Hull 18.7, Newcastle-on-Tyne 19.8, Cardiff 17.3.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING APRIL 12, 1902.

T. A. BERRYHILL, surgeon. Granted sick leave for six months.

E. KRESHNER, medical inspector, retired. Commissioned medical inspector on the retired list from April 2, 1902.

FOR THE WEEK ENDING APRIL 19, 1902.

W. L. BELL, assistant surgeon. Ordered to Pocatello, Idaho, on recruiting duty.

R. H. YOUNG, assistant surgeon. Detached from the "Rainbow" and ordered to the Cavite Naval Station.

F. M. MUNSON, doctor. Appointed assistant surgeon April 5, 1902.

M. S. GUEST, passed assistant surgeon. Detached from the Cavite Naval Station and ordered to the "New Orleans."

H. D. WILSON, passed assistant surgeon. Ordered to duty with the Marine Brigade, Philippine Islands.

H. C. HOLCOMBE, assistant surgeon. Ordered to proceed home via "Manila."

#### OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING APRIL 10, 1902.

AUSTIN, H. W., surgeon. To proceed to the Delaware Breakwater and Reedy Island Quarantine Stations as inspector of unserviceable property. April 4, 1902.

GLENNAN, A. H., surgeon. To report at Washington, D. C., for special temporary duty. April 9, 1902.

HODGSON, S. H., acting assistant surgeon. Granted extension of leave of absence for ten days from March 30, 1902. April 7, 1902.

JACKSON, J. M., acting assistant surgeon. Granted leave of absence for three days from April 9, 1902. April 7, 1902.

FOR SEVEN DAYS ENDING APRIL 17, 1902.

BANKS, C. E., surgeon. Granted leave of absence for five days from April 14, 1902. April 11, 1902.

WHITE, M. J., assistant surgeon. To proceed to Reno, Nev., for special temporary duty. April 15, 1902.

GOLDSBORO, B. W., acting assistant surgeon. Granted leave of absence for seven days. April 16, 1902.

WALKER, R. T., acting assistant surgeon. Granted leave of absence for eighteen days from May 1, 1902. April 11, 1902.

#### BOARDS CONVENED.

Board convened to meet at Baltimore, Md., to inspect steam tug "Neptune." Detail for the Board: Passed Assistant Surgeon H. D. Geddings, Marine Hospital Service and Chief Engineer H. W. Spear, Revenue Cutter Service.

Board convened to meet at the Bureau April 14, 1902, for the physical examination of candidates for appointment to

grade of second assistant engineer, Revenue Cutter Service. Detail for the Board: Surgeon L. L. Williams, chairman, and Assistant Surgeon S. B. Grubbs, recorder.

Board convened to meet at New Orleans, La., April 14, 1902, for physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon C. P. Wertenbaker, chairman, and Assistant Surgeon J. W. Schereschewsky, recorder.

Board convened to meet at Marine Hospital office, San Francisco, Cal., Monday, April 21, 1902, to examine officers of Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon W. G. Stimpson, chairman, and Passed Assistant Surgeon H. S. Cumming, recorder.

Board convened to meet at Marine Hospital, Port Townsend, Wash., Monday, April 21, 1902, to examine an officer of the Revenue Cutter Service. Detail for the Board: Passed Assistant Surgeon C. H. Gardner, chairman, and Assistant Surgeon M. H. Foster, recorder.

#### SOCIETY NOTICES.

AMERICAN ORTHOPEDIC ASSOCIATION.—The sixteenth annual meeting will be held in Philadelphia June 5, 6 and 7, 1902.

THE AMERICAN PROCTOLOGIC SOCIETY.—The fourth annual meeting will be held in Saratoga Springs, New York, June 10 and 11, 1902.

NEW HAMPSHIRE MEDICAL SOCIETY.—The one hundred and eleventh anniversary meeting of this society will be held Thursday and Friday, May 15 and 16, 1902, at Concord, N. H.

AMERICAN CONGRESS OF TUBERCULOSIS.—The American Congress of Tuberculosis will be held June 2, 3 and 4, instead of May 14, 15 and 16, as first announced, at the Hotel Majestic, New York City.

TRI-STATE MEDICAL SOCIETY OF ALABAMA, GEORGIA AND TENNESSEE.—The fourteenth annual meeting of the Tri-State Medical Society of Alabama, Georgia and Tennessee will be held at Birmingham, Ala., Tuesday, Wednesday and Thursday, Oct. 7, 8 and 9, 1902.

#### PRIZE ESSAY.

The Colorado State Medical Society offers a prize of twenty-five dollars for the best essay, for circulation among the laity, upon the dangers of self-drugging with proprietary medicines. The competition is open to all. Essays must be typewritten in the English language, must contain not more than 3,000 words, and must be submitted before June 15, 1902. Essays should be sent to Dr. C. A. Graham, secretary, Stedman Block, Denver, Colo.

#### RECENT DEATHS.

ZABDIEL BOYLSTON ADAMS, M.D., M.M.S.S., died in Framingham May 1, 1902, aged seventy-two years.

JOHN HOMANS, 2d, M.D., M.M.S.S., died in Boston May 4, 1902, aged forty-five years.

DR. CHARLES H. MASTER, a prominent physician of Rockland County, New York, died of pneumonia at his residence in Nyack-on-the-Hudson, on May 1, in the sixty-third year of his age. He was graduated from Bellevue Hospital Medical College, New York, in 1869.

DR. CHARLES ABNER PHELPS died recently in Boston at the age of eighty-one. Dr. Phelps was born Oct. 20, 1820. His father was Dr. Abner Phelps, a prominent physician. He entered the Harvard Medical School, graduating in 1844. He also took a degree at the Jefferson Medical College, Philadelphia. In 1860 he gave up the practice of medicine and devoted himself to politics.

#### BOOKS AND PAMPHLETS RECEIVED.

A Lecture on Abiotrophy. By Sir W. R. Gowers, M.D. (Lond.), F.R.S. Reprint.

The Therapeutics of Cutaneous Diseases. By Albert E. Carrier, M.D., of Detroit, Mich. Reprint. 1902.

Hare-Lip and Cleft Palate. By R. W. Murray, F.R.C.S. Illustrated. Philadelphia: P. Blakiston's Son & Co.

The Medical Treatment of Gallstones. By J. H. Keay, M.A., M.D. Philadelphia: P. Blakiston's Son & Co. 1902.

On the Decadence of the American Race. By John W. Kyger, M.D., Kansas City, Mo. Reprint. 1902.

Transactions of the American Climatological Association for the year 1901. Volume XVII. Philadelphia. 1901.

## Original Articles.

## BIRTH- AND DEATH-RATE AS INFLUENCED BY OBSTETRIC AND GYNECIC PROGRESS.\*

BY GEORGE J. ENGELMANN, M.D., BOSTON,  
President Obstetrical Society of Boston.

THE progress of medical science has left an unquestioned impress upon the world's vital record, and we see the results clearly marked in the statistics of all civilized communities. No less decisive has been the progress of obstetric and gynecic science, and we have every reason to expect similar positive results and a similar impress upon vital statistics. But it will appear that *this is not the case*; at least not to an even approximately corresponding degree, as shown by a comparison of the results achieved: On the one hand (1) the death-rate, past and present, from certain infectious diseases; on the other (2) fecundity, number of stillbirths and death-rate in childbirth before and after introduction of modern method.

## I. STATISTIC EVIDENCE OF MEDICAL PROGRESS.

This we find in fluctuations in the movements of population which are directly referable to the development of medical science, such as the control of smallpox or diphtheria and the extermination of yellow fever.

(1) *Smallpox*.—Smallpox, that foul disease which, according to Condamine,<sup>1</sup> at one time destroyed or disfigured one-fourth of mankind, and which was causing one-tenth of all the deaths of the human race when Jenner performed his first vaccination, is now almost eradicated. In the last decade of the eighteenth century, 32% of all deaths under ten years of age were due to smallpox, and at times, as epidemics swept over the land, these figures were frightfully exaggerated. In 1737, 70% of the inhabitants of Greenland died from the ravages of this disease, which has left its traces on this continent too, and has done more than any other cause to exterminate the American Indian: as late as 1837 the destruction of life was enormous, entire tribes being swept away by this disease.

The results of vaccination appear with the precision of a chemical experiment: from 1774 to 1801 there were 204 deaths per 100,000 population in Sweden. The very first attempt at vaccination (1892 to 1896) is marked by a reduction of this rate to 40.8; optional vaccination reduced this to 15.5 (1817 to 1884), and compulsory vaccination (1884 to 1893) brought the figures to a minimum, the death-rate being but .02 to .5, very much the same figures as those found in Prussia.

In 1874, when vaccination was made compulsory in that country, the death-rate from smallpox was 31 to 100,000 population; after that it was 1.5, and in 1896, .5. In the Prussian army, where revaccination is so strictly observed, it has practically disappeared—one death only is recorded from 1874 to 1896.

\* Read before the Obstetrical Society of Boston, Jan. 21, 1901.

(2) *Yellow fever*.—More striking still is the recent conquest of yellow fever,—a triumph of the most advanced methods of modern scientific medicine, preventive, protective rather than curative, which appears like one great clinical experiment, performed under our very eyes. In a very few years changes have been wrought which are usually accomplished slowly with the development of medical science in the course of the century's progress. In Cuba medieval conditions have been rudely disturbed by modern scientific methods, and the result we see in the prompt disappearance of the long-persisting scourge. For the first time in 150 years, since 1762, no death from yellow fever has been reported in the city of Havana during the usual period of its activity.

In October, 1896, the death-rate from yellow fever was still 240 per 100,000 population; in 1899 it was 29, with not a single case in 1901. Such is the showing of Major Gorgas,<sup>2</sup> chief sanitary officer of Cuba, of the splendid work done by General Wood in Havana. Yellow fever has been practically stamped out, and the death-rate from all diseases for November, 1901, was 19.6 per thousand population, which compares favorably with any city of the civilized world, somewhat better than Boston at the same period. These are the results in Cuba alone, but the benefits extend far beyond the limits of the island, throughout our southern states and into the Mississippi valley as far as Memphis, which has again and again been depopulated by yellow fever, which had its origin in Havana.

Such are statistical figures which mark *medical progress*, and it seems but natural that we should seek some corresponding evidence of the influence of *obstetric* and *gynecic* development upon the community at large—some evidence of the progress of that science whose object is the treatment of conditions which prevent the healthy performance of the sexual function and the relief of morbid processes which interfere with the normal progress of menstruation, of ovulation and of parturition.

## II. STATISTIC EVIDENCE OF OBSTETRIC AND GYNECIC PROGRESS.

We should expect a more healthy functional activity, conception more frequent, pregnancy more normal, parturition more safe and successful for both mother and child. But the result, as shown by the record of vital statistics in *birth-rate*, number of *stillborn* and number of *deaths in childbirth*, is not what we should expect from the splendid record of gynecic science, from the brilliant operative procedures and successful methods of treatment which constantly appear.

(1) *Birth-rate*.—The tendency of gynecic progress in past decades has perhaps been hardly such as to favor a healthy functional activity of the sexual organs. The mortality from abdominal section has been reduced to 3 or 4%. Series of 100 cases without a death are so frequently reported that they have become a drug on the market, but brilliant surgery, no matter how successful, can-

not compare in benefit derived with preventive medicine; removal of uterus, of tubes and ovaries, does not favor fecundity and an increased birth-rate.

However, we now see distinct evidence of a beginning revulsion—a tendency to so-called conservative surgery, though hardly as yet to preventive and curative gynecology, but we have learned to control many conditions which were formerly beyond the resources of our art. The curette and the electrical current have proven satisfactory means of overcoming endometrial inflammation; neoplasms which obstruct the uterovaginal canal are readily removed; displacements which might interfere with conception are permanently overcome; obstructed tubes are again made patulous; fimbriated extremities are repaired; and ovulation suspended by disease of the organ is made possible by a transplantation of ovarian tissue, if need be, from another individual.

Whatever the immediate operative results, they have certainly not led to a more healthy functional activity, as statistical records demonstrate: the fecundity of woman is decreasing; the birth-rate growing steadily less in all countries, most so in the United States. As an index of conditions on the other side of the Atlantic we may note the changes which have there taken place (Table I).

TABLE I.—BIRTH-RATE.  
BIRTHS REGISTERED PER 1000 POPULATION.

	1870-1874	1890-1894
Russia . . . . .	50.	48.5
Austria . . . . .	39.4	37.2
Prussia . . . . .	37.6	36.9
England . . . . .	35.3	30.3
France . . . . .	25.9	22.4
UNITED STATES . . . . .	—	22.1
Massachusetts, native . . . . .	—	17.
Michigan, native . . . . .	—	14.
Massachusetts, foreign . . . . .	—	58.
Michigan, foreign . . . . .	—	50.

From 1884 to 1898 the rate of childbirth in Austria has been reduced from 39.7 per thousand population to 36.2;\* in England, from 33.6 to 29.4; in France, from 24.8 to 22.1; and this is about the condition which exists in this country—a birth-rate of 22.1 per thousand population, which has not decreased in the last few years, because it had already reached so low a state that further reduction would seem impossible; 22.1 per thousand population is the birth-rate found by averaging that of six states in this Union, which present the most reliable statistical records. But this rate, as low as that of France, is the total, in which we must carefully distinguish the birth-rate of the native American population, which varies from 14<sup>4</sup> to 17<sup>5</sup> per thousand, and that of the foreign population, which is usually at least two and one-half times as great, from 37 to 50 and more per thousand—that of the native less than the lowest in any European country, that of the foreigner higher almost than the highest.

To the medical man the existing conditions will be more clearly depicted by the figures which represent the fecundity per marriage, or the fertility of the individual woman. In European countries this varies between four and five children to the marriage.<sup>8</sup> In the United States it is a little over two,<sup>6</sup> and in speaking of this country I shall refer only to the native-born American woman, because it is she who exemplifies American conditions. The birth-rate of the foreign-born mother is greater immediately after immigration, under the more favorable conditions of her new home, even greater than it was in her native land, but in one generation the American standard is promptly attained.

The fecundity of the American woman is decreasing with astonishing rapidity. Benjamin Franklin<sup>7</sup> allows eight children to a family, one and all considered. Genealogical records<sup>6</sup> show it to have been fully six in the seventeenth century in the American colonies; and at the end of the eighteenth century the United States stands at the head of the list, with a fecundity of 5.2,<sup>9</sup> second only to New South Wales, with 5.4 children to the marriage—a fecundity such that, when considered together with that of China, it led to the Malthusian theory of superfecundation, to the fear of overpopulating the earth's surface; and now, after a lapse of only one century,—that century of the greatest obstetric and gynecic progress,—the fertility of the American woman has been so much reduced that it is but little over two children to the marriage, much like that of France. From *first* we have passed to *last* (Table II).

TABLE II.—FECUNDITY PER MARRIAGE.

DECREASE IN UNITED STATES OF NUMBER OF CHILDREN PER MARRIAGE.

Franklin's statement . . . . .	8.
Genealogical records, 19th century . . . . .	6.
Sadler, 1750-1790, 18th century . . . . .	5.2
Salem, 1727-1784 . . . . .	4.5
Native American, end of 19th century . . . . .	3.
Native born, 1900 . . . . .	2-2.7
Foreign born, 1900 . . . . .	4.5
European average, end of 19th century . . . . .	4.5

As fecundity has decreased, sterility has increased, and throughout the entire State of Massachusetts—the only State which gives such statistical figures—it is now 20% among American women,—precisely the same status which I have found in the cities of St. Louis and Boston, that is, 20% among the entire American population, slightly less among the lower, and more, 24%, among the higher classes;—throughout the State one in every five American marriage is barren. Such are the figures;\* whatever the

\* VALIDITY OF FIGURES PRESENTED.—The minimal birth-rate and low fecundity of the American woman is so striking that objection has again and again been made to these figures as questionable by reason of the paucity and inaccuracy of vital statistics in this country. The question is one so important and so serious that I must emphasize the validity and correctness of the figures I give. I will not here argue as to their absolute correctness to the decimal. It must suffice to show that they fairly repre-

cause, obstetric and gynecic progress show no perceptible impress.

(2) *Stillbirths*.—The status of obstetric practice may be judged, as far as the community at large is concerned, by the number of stillbirths and the number of deaths in childbirth, which, like the birth-rate, are recorded in the vital statistics of the country. Stillbirths should have decreased with the progress in the science and practice of obstetrics. The death of the child *in utero* should now be almost the only admissible cause for the birth of a dead full-term fetus, and the cause of such premature death is usually syphilis, which is under reasonable control, so that even stillbirths from this cause should be greatly reduced. The life of a fully developed, viable child should no longer be endangered during the progress of labor, unless it be in extreme cases of eclampsia or placenta previa. The use of the obstetric forceps has become so general, and both instrument and method of application have been so perfected, that rigidity of tissues or inefficiency of labor pains should no longer endanger the life of the child. Malposition should no longer be an obstacle to the birth of a living fetus, since we are enabled to rectify such irregularity by external manipulation during pregnancy, and to deliver during labor by combined version; anesthesia has facilitated all obstetric operations, and made them possible when death of the child before completion of delivery must have ensued without its use. A deformed pelvis of higher degree, and abdominal tumors which, until within the last few decades, were an inevitable indication of fetal if not maternal death, are no longer an obstacle to the birth of the living child, since the perfection of the Cæsarean section and of symphyseotomy: even extra-uterine pregnancy, if developed to full term, should add to the country's living population. In fact, enthusiastic advocates of the Cæsarean section claim that ere long the intelligent woman will give preference to childbirth by this means, as thus avoiding the pangs of labor.

sent existing conditions, and this, I believe, is clearly proven by the following facts:

(1) Our population is not increasing, at the present time, notwithstanding the large number added by immigration, as much as it was by birth-rate alone in the days before immigration.

(2) All figures from various sources give the same results: from the vital statistics of Michigan and of Massachusetts, from the dispensary records of Dr. Chadwick in Boston, and my own in St. Louis, and from the study of female college alumnae by Carroll D. Wright in the East and Mary Robert Smith in the West.

(3) My own and other individual investigations are based on the report of each mother as to the number of her children, and though small compared with census numbers are certainly reliable.

(4) The figures given in the vital statistics of Michigan and Massachusetts are not the crude results of the census, but an approximation to the true birth-rate as secured for Massachusetts by Kuczynski and for Michigan by Wilbur by a correction of the crude results by addition of such numbers as experience has shown to be necessary for the omissions in each state.

(5) In the State of Massachusetts, the question "How many children in each family" was asked in the census of 1895, so that a correct ratio was obtained even if only a portion of the population was reached.

(6) The refined and corrected birth-rate for Massachusetts gives figures which would seem rather above than below the true average, as that for the foreign-born element is higher than that of any European country, even higher than that of Russia.

It is simply impossible that these figures should be below the true numbers—if anything, they are too high. This should be convincing to those who are not satisfied to accept as correct, results which are practically alike for the same class of population in three different states, immaterial whether from the State census or from private investigations.

Not only has obstetric science progressed, but obstetric teaching has been greatly perfected. The student is no longer obliged to gain the necessary experience after graduation in the early years of his medical career, but enters upon the duties of his profession with a practical experience, which his older confrères may well envy.

In face of these facts statistics show that stillbirths have not materially decreased. In European countries they appear to be diminishing somewhat in frequency, but this hardly seems to be the case in the United States, so far as we can judge from statistical records, which even now are far from perfect, and do not extend back over many years. From 1850 to 1860 we find that in European countries more than 4% of labors resulted in stillbirths: in Prussia, 4.2% (1858 to 1867); in Sweden only do we find them less frequent, 3.3% (1861-1870) less than in other countries at the present time; recently the city of Berlin reports 3.4% (1884 to 1895), a decrease of .4% from the preceding years (1877-1888). During the same period, in the State of Rhode Island,<sup>10</sup> we find 3.6%, with no change from 1877; in fact, in the entire forty-six years after 1854, only 3.8% are noted. In Rhode Island the rate has remained practically unchanged, while in Prussia it is decreasing slightly. In comparing these data with those from European countries, we must remember that on the other side of the Atlantic illegitimate births are far more common than in this country, averaging about 7 or 8%,—in some regions more, in some less,—and among these stillbirths are by far more common, usually about 7%, which of course adds to the general number.

The lowest figures given are those from Berlin<sup>11</sup> (1884-1895), 3.4%; in the year 1898, 3.5%. In the city of Budapest, which I cite on account of the accuracy of its statistics, 3.9% are recorded in 1896. Throughout Italy, from 1894 to 1896, the frequency is somewhat greater, 4%; in the city of Rome, 6%.

I may note that it would appear from European records that in some, at least, of the great centres, stillbirths are more common than in the rural communities, possibly on account of the greater number of illegitimate labors. To this fact I desire to call attention as an indication of the utter impotency of medical science when confronted with the powerful factors for evil which actually determine the movements of population.

In the Out-Patient Department of the Lying-in Hospital of the city of New York<sup>12</sup> 3.6% of stillbirths occurred, all cases included, among more than 10,000 labors, in the six years previous to 1896—practically no improvement upon the statistics of the entire State of Rhode Island for the past half-century. Among some 5,000 cases in the Out-Patient Department of the Boston Lying-in Hospital<sup>13</sup> during the three years from 1898 to 1901, 3% of stillbirths are reported. In the hospital itself, from 1874 to 1901, among nearly 11,000 cases, stillbirths reached 5.4%, but if we



**TABLE III.—STILLBIRTHS PER 100 BIRTHS.**

**(To be continued.)**

BY HASKET DERBY, M.D., BOSTON.

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Referring to the notes of my own practice, I have been able to collect the following statistics: There are notes of 117 cases. Of these 78 were males, average age 43.7; 38 were females, average age 37.7. Both eyes were affected in 86 cases; one only in 31 cases. In 71 cases there was no history to be traced. In the remaining 46 I found the following probable causes: Abuse of alcohol and tobacco, 11; syphilis, 8; blow on head, 9; brain disease, 6; apoplexy, 1; epilepsy, 1; locomotor ataxia, 1; meningitis, 2; optic neuritis, 2; erysipelas, after lachrymal abscess, 1; mumps (both cases children), 2; following pregnancy, 1; tumor of pituitary body, 1.

Coming now to the question of possible treatment of what is undoubtedly one of the most fatal of diseases, we are met with a sweeping statement by one of our foremost authorities. I find in the *New York Medical Record* of Nov. 16, 1901, an account of the proceedings at a meeting of the Academy of Medicine, in which occur the following remarks made by Dr. H. Knapp: As to the futility of treatment in atrophy of the optic nerve, he begged leave to tell his own opinion and that of the late Dr. Alfred Loomis, who had asked his opinion about the therapeutic value of electricity in tabic and other atrophies. He, the speaker, answered he thought that electricity, in these diseases, was next to quackery, to which Loomis replied: "That is too far off." It would seem that other methods of treatment are intended to be included in this condemnation.

With all modesty, I beg to differ from the foregoing statement, and to base this on certain facts.

I have been able to subject 26 of the foregoing patients to courses of treatment, and to follow up the results. And they may be thus tabulated: Not relieved, 15, the disease progressing and terminating in blindness; doubtful relief, 1; temporary relief, 2; appreciably relieved, 8; and by relief I mean an evident cessation of the onward march of the disease, with occasionally a slight increase in the limits of the field and the acuity of vision. In each instance the case was held under observation a length of time that, judging from the previous progress of the disease, would have afforded an opportunity for manifest failure of sight, and in which this would actually have occurred.

The amelioration thus obtained has been due to the use of a single drug, strychnia, applied in gradually increasing doses in the temples by subcutaneous injection.

The use of strychnia in amblyopia and amaurosis dates back to the early part of the nineteenth century, Thomas Shortt of Edinburgh having first brought it into notice. He used large doses, applied endermatically and as near the eye as possible, and claimed striking results. He flourished long before the invention of the ophthalmoscope, but as far as symptoms are concerned it seems probable that some of his cases were optic nerve atrophy. Others followed in

his footsteps. But the credit of introducing this form of treatment by local subcutaneous injection belongs indisputably to Nagel of Tübingen, who, in 1872, published a monograph on the subject. This pamphlet, no doubt familiar to many of you, gives numerous cases of optic nerve atrophy, occurring in both the young and those of middle age, all similarly treated and with the results carefully recorded. In certain instances he claims increase in the visual acuteness, in the area of the field and even in the appearance of the nerve itself. So far as the cases could be followed up, some of the results appeared to be lasting.

Becker of Heidelberg applied the method in a case of embolus of the central retinal artery, and obtained disappearance of the cherry red spot, enlargement of the field and a return of normal vision. Horner of Zurich reported a case of white atrophy combined with retinal hemorrhages, where vision quadrupled, the appearance of the nerve remaining unchanged.

In 1873 von Hippel of Königsberg published a brochure containing a long list of cases, and summed up his experience in the following words: "These facts convince me that in diseases of the optic nerve, where our therapeutics have hitherto been of no account, we possess in strychnia a drug which in many cases arrests advancing disease, and in others materially improves the much impaired vision; while its effect is not limited to those cases in which the ophthalmoscope shows as yet no evident anatomical change in the nerve, the fact being that in actually developed atrophy we may obtain most astonishing results, always supposing that there remains good perception of light."

In 1876 Haltenhoff of Geneva also brought out a pamphlet on the subject and advocated the treatment. Since that time, while many works on ophthalmology still advise the internal administration of strychnia, less and less stress is laid on local subcutaneous injection, and the impression is largely given that we can get the same effects by giving the drug by the mouth. As far as I am aware, the method of Nagel has at present but few, if any, adherents in our own community, a fact which is not perhaps extraordinary when we look over some of the accepted textbooks of the day. Noyes mentions the plan of Nagel, but indicates his own preference for the internal administration of the drug. Berry gives no treatment whatever. The same is true of the smaller work of Norris and Oliver, while even in their larger system of diseases of the eye the strychnin treatment receives no mention. Among our own writers De Schweinitz alone comes out with the advice that the drug be administered in full doses, and states that the hypodermic method affords the best result. Fuchs, edition of 1898, of course alludes to the method of Nagel, but expresses some doubt as to the permanency of the effect on the nerve caused by the strychnia, while admitting its immediate effect.

It is most reasonable to suppose that the preferable method of administering the strychnia is

the hypodermic. When a drug of this kind is given by the mouth the rapidity of the general effect must depend on the contents of the stomach and the state of digestion. And if a supra-orbital or a facial neuralgia is most quickly relieved by an injection of morphia made in the immediate vicinity of the nerve affected, it stands to reason that the effect of the strychnia must be the more rapid, to say the least, when it is injected in close proximity to the nerve it is desired to stimulate.

As has been stated, there were 26 cases in which the strychnin treatment was carried out. In 15 of these no effect whatever was produced and the disease progressed to blindness. But in 8, about 30%, the result was fairly encouraging. Many of these patients came from a distance, and I ultimately lost sight of them, nor have I been able to trace their subsequent history. But they were all so much encouraged when they left the city that I cannot help feeling that I should have heard again had there been subsequent failure, especially as it is my habit to urge such patients to write to me, whether they are intending to return or not.

**CASE I.** A Maine lumberman, age 43; health excellent. Rapidly progressing atrophy. Right eye, vision .3, left counts fingers in 50 cm.; no letters can be seen. Two months later, vision right, nearly .5; left makes out 60 of Monoyer in 60 cm. Two years later writes that his vision has failed, if at all, very slightly.

**CASE II.** Female, age 25. No history. Vision right .4, left not quite .8; one course of injections. At its close, vision right .7, left 1. Two months later was holding her own.

**CASE III.** Man from Nova Scotia, age 60. Under strychnin injections his vision doubled, rising from .2 to .4. He died suddenly in the course of the same year, but I have no reason to suppose that he lost any of the vision he had gained.

**CASE IV.** Man, age 32. One eye entirely blind, nerve atrophy marked in the other. Vision at first .6, after treatment, nearly .8. Six months later had lost no ground. Previous to treatment failure had been rapid. At end of a year, still improving, as he writes.

**CASE V.** Man, age 68. Vision of each eye failing for three years. Vision before treatment, right .3, left .2. One course of injections. This patient was seen in consultation and but once. But his physician reported that he held his own seven months afterwards.

**CASE VI.** Female, age 64. Right eye gone, left rapidly failing. A single course of injections. This case, too, was seen in consultation, but the physician reported a cessation of the progress of the disease six months later.

**CASE VII.** Male, age 67. Only one eye affected, vision .5. At the end of six months after one course of injections no progress could be noted.

**CASE VIII.** The history of this patient has been so remarkable that I will close this paper by giving it more fully. A. B., a boy of five, was brought to me in the summer of 1874. Three years previously he was reported to have had a serious inflammation of the brain, during the progress of which his life was at one time despaired of. Since that time he had been somewhat deaf and rather backward. Vision of right eye had lately been found to be imperfect. There was complete white atrophy of the right optic nerve, no perception of light. The left nerve was of a grayish color, but vessels were full and vision appeared to be good. I did not see him again until 1881. His deafness and backwardness had long since disappeared, but in reading he was said to hold his book close, as though he were near-sighted. Vision was now .4,

visual field slightly but uniformly contracted, nerve as white as the other, but vessels fairly well filled. In 1885 vision was nearly .6; field as before (Fig. 1). In April, 1888, his central vision had fallen to .4, but a weak concave glass brought it up to nearly .7; field the same. In October, 1892, central vision and fundus remaining unchanged, there was found great diminution in the field (Fig. 2). Injections of strychnia were at once commenced, but the field narrowed steadily and rapidly; and Nov. 10 was as in Fig. 3. The patient all the while felt poorly, was easily fatigued and lost weight. Dr. Walton, in consultation, found nothing, and considered the case a most unusual one. Another course of injections was now carried out, and the progress seemed arrested. His strength improved and there was even a slight increase in the length of the field. In February, 1895, the field was found to be narrowing, and in May it had reached the size shown (Fig. 4). Strychnia repeated. Dr. Walton again found no evidence of brain disease, and wrote: "It seems as if the strychnia treatment must have kept the trouble back materially." In November Dr. Walton found the knee jerk normal and the general health considerably improved. On March 24, 1896, field evidently again contracting; another course of strychnia and arrest of the process; central vision the same. On April 13 there was another relapse, and the field now reached its maximum of contraction, narrowing to little more than a horizontal slit (Fig. 5). Another course of strychnia. Dr. Walton found no change in general health. In January, 1897, the field had slightly widened in a vertical direction. Twice since then there has been a slight change for the worse, and each time a course of strychnia was started, the last being in May of that year. From that time forward the case has been simply kept under observation. His health is now good, central vision between .7 and .8, and the field has grown notably larger, a considerable change for the better having occurred during the present year (Fig. 6).

The patient is now thirty-three years of age. He is a man of education and intelligence, and his enforced leisure has enabled his observation and comparison of his own symptoms to be thorough. At my request he called on me a short time since, and I plainly asked him to state his mature judgment as to the effect of the strychnia injections. His reply was that in three instances he considered the disease to have been distinctly checked, while in the other two "remarkable improvement" (I use his own words) had followed.

As regards the technique of these injections I would say that I have been accustomed to make them in either temple alternately. Since using aseptic precautions I have never observed any local irritation. Previous to this abscesses were not uncommon. I begin with .04 of a gr. and add .01 daily, until constitutional effects are observed, expecting generally to reach at least the tenth injection. By that time the temples are apt to be a little sensitive, so I wait ten days and then repeat the course. In some few cases a third course of injections has been found of advantage.

To sum up the whole matter, I freely admit that these cases are not brilliant as to result. But the malady is in itself so fatal, and has been regarded as so hopeless, that it seems to me the smallest chance of relief, whether temporary or permanent, ought not to be allowed to slip.

The following conclusions are justifiable:

(1) Strychnia is a stimulant to the optic nerve. Even in normal eyes it slightly increases the acuteness of vision and widens the visual field. These effects are temporary (Fuchs).

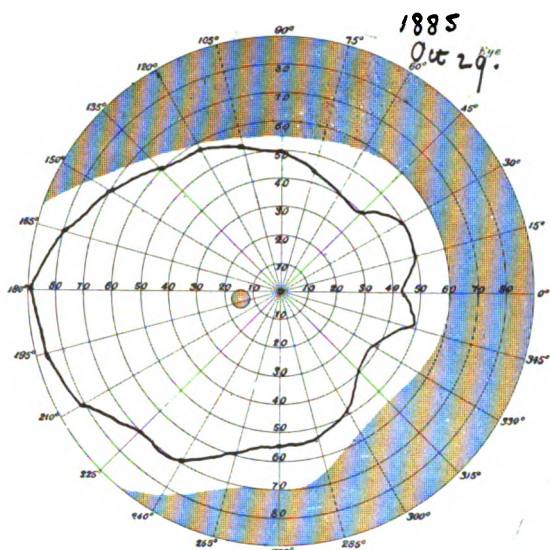


FIG. 1.

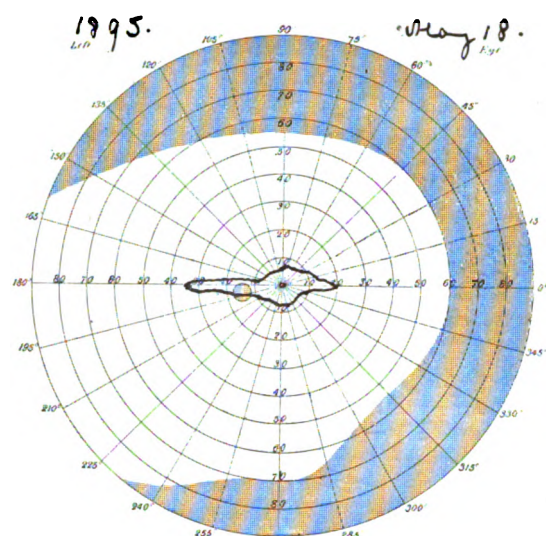
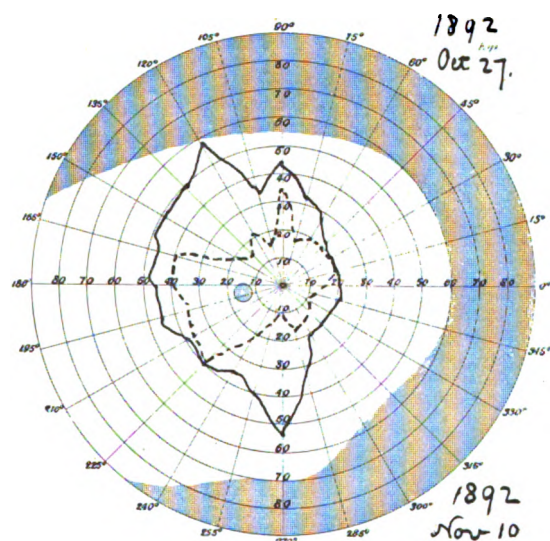


FIG. 4.



FIGS. 2 AND 3.

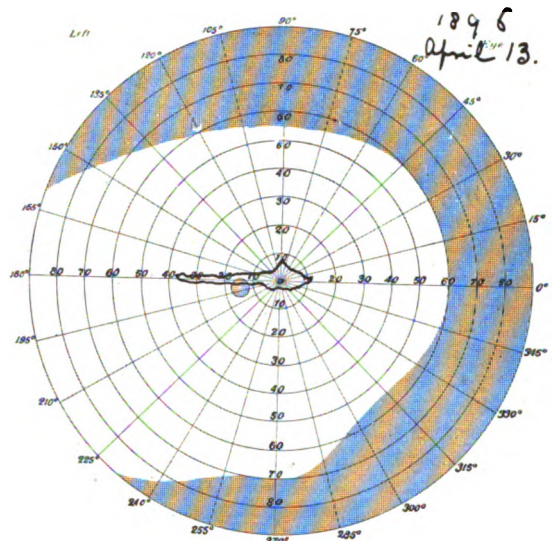


FIG. 5.

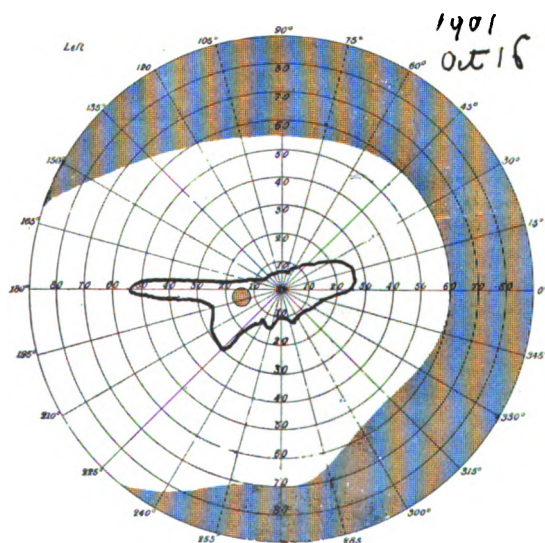


FIG. 6.





(2) In certain cases of optic nerve atrophy its local subcutaneous injection has, to say the least, coincided with an arrest in the progress of the disease, and has been followed by a somewhat increased acuteness of vision. Whether these effects are temporary or permanent, time and fuller statistics will show.

(3) In a progressive case of this disease it is clearly our duty to state the above facts to the patient, and allow him to take the treatment if he is so inclined.

(4) The strychnia should always be administered in the temple, and by subcutaneous injection.

CASE IX. On the day this paper was to be presented I saw, through the kindness of his physician, for the first time, a patient whose case seems to me remarkable. A young man, age 23, was attacked two years ago with progressive optic nerve atrophy, and his vision very rapidly declined. He saw several specialists here, and finally consulted Dr. Kalish of New York, who advised the strychnin treatment. This has since been carried on by Dr. Stickney of Arlington, from whom I have the following particulars: Commencing with  $\frac{3}{16}$  gr. after each meal, by the mouth, and the same amount by injection in the temple daily ( $\frac{3}{16}$  gr. in all) he went up in two months' time to  $\frac{1}{2}$  gr. after each meal and  $\frac{1}{2}$  gr. subcutaneously daily, making  $\frac{3}{4}$  gr. a day, and kept up this amount for one year. Now he takes  $\frac{1}{16}$  gr. by injection, and  $\frac{1}{8}$  gr. to  $\frac{1}{4}$  gr. after each meal, making  $1\frac{1}{8}$  gr. per day, and has kept this up some months.

The patient, who is quite intelligent, tells me that his vision rapidly fell off in the outset, until treatment was commenced, and that then the progress of the disease appeared to be arrested. Dr. Stickney says that he was unable, a year or more ago, to count fingers, but that he can now do this with either eye; moreover, that he distinguishes some colors, sees the glass in his father's greenhouse and even makes out the leaves on the plants. The examination made by me showed typical and advanced optic nerve atrophy in either eye. There is a small, lateral visual field in the right, with no central fixation. In the left there is central fixation and a very limited lateral field. Either eye counts fingers in the distance of about one metre. The left eye, of course, does this more easily than the right.

This patient has taken an unusual amount of strychnia and for an unusual length of time. In regard to its general effect Dr. Stickney writes as follows:

"I would add that only once did we have any marked evidences of the doses given being too large, and then probably the subcutaneous dose of  $\frac{1}{2}$  gr. was given too near a dose of  $\frac{1}{2}$  gr. by the stomach. Judging by the rapid development of strychnia symptoms the subcutaneous dose of strychnia was probably injected into a vein. A spasm of the muscles in the back and legs came on suddenly, patient fell his full length on the sidewalk, rupturing the left membrana tympani. Bleeding from the ear, nose and throat came on, with vomiting for several hours. Intellect remained perfect throughout this time. In ten days patient had recovered, and hearing was restored in three weeks. Of course tonics have been used more or less. At times the pallor of face was marked and nitroglycerin was used with benefit."

GIFT TO THE LAKESIDE HOSPITAL, CLEVELAND.  
—Mr. J. H. Wade of Cleveland is reported to have recently announced a gift of \$100,000 to the Lakeside Hospital.

## DISEASES OF THE EAR OF INTEREST TO INSURANCE EXAMINERS.\*

BY PHILIP HAMMOND, M.D., BOSTON,

*Assistant in Otology, Harvard University; Assistant Aural Surgeon, Massachusetts Charitable Eye and Ear Infirmary, etc.*

THERE is considerable difference of opinion among the members of the profession as to what aural conditions constitute sufficient grounds for the rejection of an applicant as an undesirable risk. At the present time nearly all companies refuse to consider persons having a suppurative process in either ear, although some accept candidates who have had no discharge for three months. As I shall show later on, this rule is not a sufficient protection, inasmuch as there are certain conditions which favor recurrence of the disease.

It is interesting to note that although the intracranial complications of ear diseases are comparatively infrequent, they are exceedingly dangerous. Bürkner<sup>1</sup> found that  $\frac{1}{10}$  of 1% of all ear patients die from otitic intracranial disease. These figures were also confirmed by Randall<sup>2</sup> and Schwartze.<sup>3</sup>

According to the records of Guy's Hospital,<sup>4</sup> there were between the years 1869 to 1888 57 deaths from purulent ear disease out of 9,000 cases of all kinds, or about  $\frac{1}{3}$  of 1%. The records of a very much larger number of cases occurring in the Vienna General Hospital<sup>5</sup> show that out of over 40,000 post-mortem examinations, 232, or about .58%, died of aural complications.

No exact statistics are available as to the number of persons who die annually from ear diseases, but the list is undoubtedly a long one. Von Troltsch was of the opinion that a suppurative disease of the middle ear was as serious a risk to accept as many cases of valvular heart disease, phthisis or hernia. Barr<sup>6</sup> hardly concedes this, but believes all companies should inquire carefully as to the existence of any present or past suppuration, and that the actual condition of the ear should be taken into account in considering the expectation of life. The existence of a chronic discharge which persistently baffles all treatment should be considered as very unfavorable; a discharge which stops absolutely under treatment, leaving an open perforation, may be accepted conditionally; and a suppurative ear which heals by forming a new cicatricial drum may be accepted without reservation. In the latter case the ear is no more liable to future disease than it was originally, but in the case of an open perforation, the least drop of water entering through the drum, as, for instance, in bathing or a severe head cold, is apt to cause a renewal of the suppurative process.

The mere fact that the patient states that he has had a discharge from the ear should not necessarily militate against him, for all aurists of experience will recall cases where patients have applied for the relief of a discharge which examination has shown to be simply cerumen or, in other cases, due to the moist secretion of an ec-

\* Read by invitation at the Fourth Annual Dinner of the Medical Examiners of the Massachusetts Catholic Order of Foresters, Feb. 11, 1902.



zema. This shows the necessity for a careful examination with the mirror and speculum in all suspected cases, and positive evidence as to whether the drum is open or not. In the case of any disease of the external ear there is seldom any danger to life, but in the event of a hole in the drum we should be on our guard.

Neither is it wise to take the statement of the patient that he has never had an abscess in the ear, for there are many who are unconscious of the fact that one or both ears are diseased, often as the result of a forgotten trouble in childhood. Even the fact that the patient appears to hear perfectly well does not exclude the possibility of disease.

As an illustration in my personal experience, I recall the case of an insurance agent, who came to me because he occasionally suffered from slight deafness during an attack of coryza. Examination revealed the fact that there was a perforation of each drum occupying fully half its area, and yet in conversing with this man no one would have suspected that he was in any degree deaf. In this case the patient could not recall ever having had any discharge from the ear, and yet the condition could have been caused only by a suppurative process.

In another case a young lady applied for the relief of a recent deafness in one ear, stating that there was nothing the matter with the other. On investigation the supposed good ear proved to be filled with pus, and a little questioning revealed the fact that it had been discharging over twenty years. The patient had become so accustomed to it that she no longer considered it an inconvenience. This shows how easily a really serious condition may be overlooked if the examiner be not always on the alert.

It is sometimes possible to detect the presence of a constitutional malady like phthisis from the clinical appearance of an ear long before the disease has manifested itself in the other organs. A striking example of this occurred in the writer's practice about six years ago. A young man presented himself with the history of an acute supuration of the right ear. There was rapid disintegration of the drum from the start, until the appearance changed from two small perforations to an almost complete destruction of that membrane. A diagnosis of probable tuberculosis was made from the clinical aspects alone, as examination of the chest and sputum had been negative. As is characteristic with this disease recovery progressed slowly, and the patient was under observation some two years. At the end of this time he had a severe cold with protracted bronchial cough, which on examination proved to be tubercular.

In this instance a probable diagnosis of consumption had been made from the appearance of the ear two years before other signs appeared. I am happy to state that the patient entirely recovered his ordinary health by removal to a favorable climate, and is following his usual vocation.

Since we all grant the possibility of death from the existence of a chronic suppurative process in the ear, the next question to consider is what other dangerous diseases of the ear are apt to shorten the life of the individual?

The fatalities are not confined to the cases of chronic disease by any means. The writer recalls having seen two patients die in one week of acute purulent meningitis caused by direct extension from the ear. In each case the trouble was very acute, the lapse of time from the first symptom to the fatal result having occupied not more than a week. In one of the cases there was a lack of development of the bony roof of the middle ear, as sometimes happens, thus affording a direct route from the ear to the brain.

Among other causes which we must include in our dangerous list are suspicious nodules or tumors of the auricle in elderly persons, or ulcerated areas which may be due to the breaking down of an epithelioma. Lupus is also to be carefully considered with any ulcerative condition of the auricle, as it may manifest itself around the ear, although it usually occurs early in life. Any stenosis of the external canal due to the results of old traumatism or abscess is exceedingly apt to give rise to trouble in case of another outbreak in the middle ear. The presence of an exostosis is dangerous in the same way. In the event of an infection of the middle ear, and the presence of an obstruction in the canal sufficiently large to block it in any measure, the discharge would be walled in on all sides, and would naturally seek relief in the direction of least resistance, which would usually be towards the brain. In the case of a bony or cartilaginous growth, its removal is a simple matter.

One point which seldom receives mention in this connection is the extra liability of persons partially deaf to accidental injury. One who hears imperfectly in one ear often has the greatest difficulty in locating the source of sounds, and it will readily be perceived at what a disadvantage this would place one in case of sudden danger.

While vertigo may be an aural symptom, it has to be considered from many standpoints before we can positively say that any one organ is the cause. It may be due to the stomach, to the eyes, or to some obscure central lesion of the brain. Even the fact that the patient has some deafness does not necessarily imply that his dizziness is of aural origin. In many instances the vertigo from the ear is slight and transient, but it may be constant and associated with vomiting. Frequently the patient has a sudden attack, without any premonitory symptoms, sufficient to cause him to fall to the ground if not supported in some way. As may readily be imagined this is a serious affair to a man who is employed as a carpenter or painter. In such an instance it means that the man cannot follow his trade while subject to the attacks, and in many cases it is unsafe for him to go about unattended. I recall one such example in the person of a locomotive engineer, who suf-

ferred from a relapse of an old suppurative ear which had ceased discharging years before, leaving almost total destruction of the drum. In this case the suppuration responded readily to treatment, the ear became dry, and the vertigo entirely disappeared. It would not be safe to accept such a risk, however, unless absolutely sure that the disturbance to equilibrium came from some lesion which was in no way to exert an unfavorable influence on the duration of life. We should examine critically for symptoms of a brain tumor or syphilis in any case not readily explained.

The prognosis in the cases of complicated suppurations has changed materially in recent years, and this naturally affects the standing of insurance applicants suffering from this trouble. It is of the greatest importance in examining one of these cases to detect the cause of the otorrhea, for many are comparatively simple and easily cured. Often after fruitless attempts by syringing, the use of solutions, etc., the removal of a mass of granulations, or maybe of the ossicles themselves, if diseased, will bring about the desired result. Even in those cases which formerly were considered as hopeless, where there was formation of cholesteatome within the temporal bone, or possibly extensive caries, modern surgery has finally triumphed. In a general way we may say that those diseases of the ear which would cause us to unconditionally reject an applicant consist of local manifestations of grave constitutional disorders. We should reject all active suppurations with the reservation that they may be accepted only when absolutely cured.

We must bear in mind the fact that although we are safeguarding the interests of the company, the applicant also has certain rights. It is most unjust to deprive a man of the benefits of insurance if the defect from which he suffers can be overcome, and it is a good rule in doubtful cases to defer examination until such time as we shall have definite knowledge as to the probability of recovery. Once the patient has been rejected for any cause, it makes future acceptance by the same or any other company doubly hard.

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### Clinical Department.

#### MASSACHUSETTS GENERAL HOSPITAL. CLINICAL MEETING OF THE MEDICAL BOARD.

(Concluded from No. 19, p. 493.)

Drs. H. H. A. BEACH and FARRAR COBB presented a case of

#### TRAUMATIC ASPHYXIA

which is of much rarity and interest. Not more than two or three cases of the sort have recovered

so far as is known. Time will only permit me to show you the case and the pictures of him, and give you a very brief account of the history, and just touch upon the most important facts of the pathological theories and literature of the subject.

By a curious coincidence, on the very day and week that this case entered the hospital, Drs. Burrell and Crandon of the Boston City Hospital reported a similar case from the hospital service of Dr. Burrell, which case also recovered. In their article, a résumé of the history and pathology of the lesion is given somewhat at length. Later in the year a complete account of this case, together with a full study of the question, will be published.

The name given to the remarkable condition is traumatic apnea or traumatic asphyxia. This expresses the mechanism of the condition, namely, that the peculiar and striking discoloration is caused by forcible compression of the thorax for some length of time so that breathing cannot take place. I will pass around this really excellent water color painting done for me by Mr. Aitkin, through the courtesy of Dr. Richardson, and also two photographs. These pictures will show better than we can describe the remarkable appearance of the patient.

The patient was a large muscular German between thirty and forty years of age and in perfect health at the time of the accident. He entered the accident room one hour after he had been caught and held by an elevator for fully three minutes. It is said that his face turned black and his eyes protruded, and that he bled from the nose before he was released. He was unconscious only for a few minutes after being set free. When first seen at the hospital he was conscious, but somewhat stupid, and was in a state of moderate shock and presented the appearance shown in the colored picture. Examination showed that he had been subjected to violent trauma from the groin and buttock to the midthoracic region; over the skin of the abdomen were several contusions; in the left loin and back, low down, was a large fluctuating hematoma; the eighth and ninth ribs on the left were fractured in the mid-axillary line; in the neighborhood of the fractured ribs, for a short distance, was a moderate amount of subcutaneous emphysema. Examination of the heart and lungs was negative. The appearance of the face and eyes was as you see. Ophthalmoscopic examination by Dr. Cheney showed no hemorrhage of the retina. Pressure on the blue-black skin did not cause it to pale completely, as in the case of cyanosis, but had little effect. By careful inspection the skin of the face seemed to be dotted with countless spots from black to reddish black or blue in color, very close together, and between these spots lines or areas, very minute, of normal skin. These spots could be best noted at the line of the hair on the forehead and close to the line of demarcation of the color in the neck. The artist has shown the punctate nature of the coloring very well. The line of demarcation in the neck in front was

sharp, as can be seen; but what is not shown in the picture, and has not been noted in any other case, is that the double triangle of the trapezius muscle was marked out very clearly, that is, in the back of the neck; there was no discoloration, except within the confines of the trapezius muscle.

The man got well. At no time was he very sick, except that on the third day his temperature rose to 106°, and he seemed to be oppressed for breath; both lungs were full of râles and the expectoration was somewhat bloody. This condition, however, passed away in twenty-four hours. The hematoma in the back was aspirated six times; each time from one to two pints of bloody serum was withdrawn, and each time the fluid reaccumulated with great rapidity, at last dissecting around under the skin to the front of the abdomen, so that a free incision and packing with gauze was made. At present there is still a small cavity needing dressing. The serum was at all times sterile.

On the second day after entrance, with the consent of the patient, a piece of skin was removed from the discolored area in the neck for microscopic examination, with the view of throwing some light on the minute pathology of the lesion. So far as is known, this is the only case in which it has been possible to obtain sections of skin from the living patient.

The color faded rapidly after the third day, simply fading out, the areas of normal skin between the punctate color regions became wider and larger, the general color scheme faded from black to lead color to a slight cloudy appearance of the skin, and as you see the patient now this evening, the skin of the face looks not quite normal, but somewhat suffused. In contrast to this, the subconjunctival discoloration was actually due to hemorrhage, and here the usual chemotactic changes were noted, as in the absorption of any blood clot. In the face there were no pigmentary changes; in the eyes these were present. All the functions of the body were performed normally during convalescence.

The gross cause of this condition was evidently violent compression of the chest, extending over several minutes, accompanied by entire cessation of respiration. So far as we can ascertain, only two cases have been studied in the living, Dr. Burrell's case and my own. The knowledge of the subject has hitherto been gained from fatal cases. It has been noted that such appearances are most frequent in individuals pressed to death in struggling crowds or mobs. Ollivier and Tardieu have reported the post-mortem findings in several such cases, but aside from the appearance of the face and eyes no specially characteristic pathological lesions have been found. In all cases it was noted that the blood was black, fluid, filling all the large veins running into the heart. Punctate hemorrhages occurred in the loose tissues of the scalp, on the surfaces of the pleura and the heart and the abdominal viscera. Briefly, pathological findings, post-mortem, have only been characteristic of tremendous venous engorgement.

The object of special interest is the minute pathology of the discoloration. Is it caused by subcutaneous hemorrhage or by venous stasis? And why should this remarkable discoloration be so sharply limited to the head and neck? There is a conflict of opinion as to the minute phenomena. As Dr. Burrell has said: "Respiration is stopped, the blood becomes carbonized, and the blood tension, at first raised, rapidly drops. There is an undoubted escape of blood under the conjunctiva; but in the skin, while there may be true hemorrhage, the fact that color fades somewhat on pressure and that the color does not go through the changes of tint usual in a skin hemorrhage, favor the theory of Ollivier and others that the skin appearance is largely stasis of carbonized blood in dilated and temporarily paralyzed capillaries."

The unique feature of this case is that it is the only case from which sections of skin have been studied after being taken from the living. It seemed rational that the discoloration was due to stasis of carbonized blood in dilated capillaries, but we thought that microscopic examination of these pieces of skin would definitely settle the question as to whether the abnormal color was due to subcutaneous hemorrhage or to stasis alone, or to a mixture of both. The examination of our sections shows apparently normal skin. Dr. Wright says he can see nothing else in them. This is important negative evidence in favor of stasis as the cause of the color; certainly, had there been subcutaneous hemorrhage, our sections would have shown it.

DR. G. L. WALTON showed a case of  
ANGINA CRURIS (INTERMITTENT CLAUDICATION).<sup>2</sup>

This case presents a typical example of a malady heretofore regarded, perhaps, rather as a neurological curiosity than a subject of interest to the general practitioner, but its study may be of practical value in paving the way to the better understanding of many obscure cases commonly designated by the familiar but not always accurate terms, sciatica, internal varicose veins, or the result of flat-foot. The patient came to the Neurological Clinic, complaining of attacks of severe pain in the right calf. He could walk but a very short distance before being seized by a pain which prevented further motion, and which could only be compared to a severe attack of tic douloureux. The leg was cold, but physical examination was otherwise negative. He gave a history showing marked neuropathic tendency; also a history which indicated spinal lesion (possibly specific) several years ago, from which he recovered, but during which there was paralysis of the limbs and of the bladder. He was referred to the house, where he entered the service of Dr. Shattuck, who has kindly allowed me to study the case and to report it. The only further objective sign is absence of pulsation in the dorsalis pedis arteries of both feet, and very faint pulsation in the posterior tibials. The attacks have recurred

<sup>2</sup> For complete report of this case see *Journal*, April 8, 1902.

during the daytime and at night, notwithstanding the treatment which has been recommended for this affection, particularly strophanthus and nitroglycerin. The attacks last about half a minute, and the blood pressure, taken by Dr. Jackson, at the onset of one of the attacks, showed a rise of 50 mm. of mercury. In view of the possibility that this rise was due to muscular movement resulting from the pain, Dr. Quinby has, at Dr. Jackson's instance, tested the blood pressure of normal individuals undergoing short periods of violent exercise, and has found no appreciable rise in the blood pressure.

Cases of this nature have been reported from time to time in the neurological periodicals, since Charcot called attention to the symptom in 1858. As regards the etiology, the arterial degeneration incident to advancing years (atheroma) was at first regarded the underlying cause, excepting in cases with local or general source of arterial obliteration (aneurism, syphilis). Erb mentioned gout, the misuse of tobacco, exposure to cold and other causes. Many cases have now been reported between the ages of twenty and forty, and a congenital tendency to angio-sclerosis is now deemed a sufficient cause. The arterial obliteration alone is not sufficient to explain the attacks of pain, which are probably due to superimposed vasomotor spasm, to which a neuropathic disposition renders the patient liable, and it seems probable that a third factor, namely, a sudden increase of blood pressure, is essential to the spasm.

In studying this subject, Dr. Paul and myself have been impressed with the not infrequent coincidence of painful nocturnal cramps, with signs of impaired circulation, and pulseless arteries in the foot, and we are inclined to regard such painful cramps as a modified form of this disorder, for which we have suggested the name "angina cruris" as more accurately descriptive than those hitherto proposed. The study of the subject is of practical value as aiding in the interpretation of the various obscure cases of malnutrition and of painful cramp, as directing the attention to the circulation rather than to the nervous system. The treatment of well-established angina cruris is most unsatisfactory, but much may be done in incipient cases by way of preserving the circulation.

Dr. Putnam, who is much interested in this subject, and who has reported one of the only two cases published, I think, in this country, is unable to be present this evening to discuss the subject, but he authorized me to say that while recognizing the important part played by the circulation in all these conditions, he is in doubt whether the cases with nocturnal attacks should be placed in the same class with those of well-established claudication occurring only during exercise.

Dr. E. A. CODMAN spoke on

A RESUME OF THE RESULTS OF DR. HARRINGTON'S SERVICE FROM JUNE 1 TO OCT. 1, 1900, AS SEEN IN THE FOLLOWING JUNE OR LATER.

Last May, with Dr. Harrington's approval, postals were sent to many of the patients who had been in the East service of the previous year, asking them to call at the hospital on any morning during the first two weeks in June at about eleven. More than a half of those thus notified responded by letter or in person and were examined, and the results were noted in the records. These results were, as a whole, so interesting and instructive to us that we have made an effort to present them briefly to you in the following table and remarks, hoping that they may give some idea of one-ninth of the surgical work of the hospital, as seen through the perspective of a year. This is not presented as statistical but as a sort of review. Possibly it may be interesting to you to glance at the everyday work of the hospital staff, as well as the rare or brilliant cases which are usually shown at these meetings.

DISEASE.	Number traced.	Perfect result.	Good result.	No improvement.	Bad result.	Died.	Died after leaving hospital.	Total number treated.
Appendicitis:								
General peritonitis from appendicitis.	5	...	...	...	...	5	...	6
Appendicitis; wound drained.....	14	7	7	...	...	...	2	20
Appendicitis; wound closed.....	15	9	4	2	...	...	...	23
HERNIA:								
Strangulated inguinal.....	1	1	...	...	...	...	...	2
Inguinal.....	1	5	2	...	...	...	...	22
Umbilical.....	2	1	1	...	...	...	...	3
Femoral.....	2	2	...	...	...	...	...	3
Other forms.....	1	...	1	...	...	...	...	2
MISCELLANEOUS LAPAROTOMIES.								
Fibroid of uterus.....	4	4	...	...	...	...	...	6
Salpingitis.....	5	4	...	...	...	1	...	9
Ovarian cyst.....	1	1	...	...	...	...	...	2
Malignant cyst.....	2	1	...	...	1	...	...	4
Cancer of rectum.....	1	1	...	...	...	...	...	1
Closure fecal fistula.....	1	1	...	...	...	...	...	1
Gallstones or cholecystitis.....	4	2	2	...	...	...	...	6
Tubercular peritonitis.....	2	2	...	...	...	...	...	4
Intestinal obstruction.....	1	...	...	...	1	...	...	2
Phantom tumor.....	1	1	...	...	...	...	...	1
Cancer of stomach.....	1	...	...	...	1	...	...	2
Cancer of liver.....	1	...	...	...	1	...	...	1
Traumatic rupture of intestine.....	1	...	...	...	1	...	...	1
Cancer of uterus.....	1	...	...	...	1	...	...	1
Extra-uterine pregnancy.....	2	1	1	...	...	...	...	3
GYNECOLOGICAL CASES.....								20
Caruncle.....	1	1	...	...	...	...	...	...
Ventral fixation for retroversion.....	4	3	...	1	...	...	...	...
Repair of cervix, with or without perineum.....	3	3	2	1	...	...	...	...
Dilating and curetting.....	3	3	...	...	...	...	...	...
Complete repair, cer. per. and V. F.....	3	2	...	1	...	...	...	...
GENITO-URINARY CASES:	12	1	4	2	...	5	...	27
HEAD INJURIES:								
Compound fracture of skull.....	1	...	...	...	1	...	...	4
Fracture of base.....	2	1	...	...	1	...	...	2
Concussion.....	1	1	...	...	...	...	...	5
Bone and joint disease.....	3	3	5	...	...	...	...	13
Plastic operations.....	3	2	2	1	...	...	...	7
Fistula in ano.....	5	3	2	...	...	...	...	9
Empyema.....	2	1	1	...	...	...	...	5
Tubercular glands of neck.....	4	2	2	...	...	...	...	8
Cancer of breast.....	8	3	4	...	1	...	...	11
Fibroma of breast.....	1	1	...	...	...	...	...	2
Miscellaneous malignant cases.....	7	2	3	...	...	2	...	13
Accident cases.....	9	3	2	...	4	...	...	34
Miscellaneous cases.....	19	9	3	...	1	6	...	49
Fractures of various kinds.....	11	3	8	...	...	...	...	41
	181	61	79	7	3	28	5	380

*Explanation.*—Most of the results were seen personally by Dr. Harrington or by Dr. Codman. A few who replied by letter are included. The results of cases as seen at the time of discharge and not heard from later are not given, because

such figures can easily be obtained from the Annual Report.

Perfect results are not discussed in the remarks at the end because they are perfect and speak for themselves.

Good results include those cases which, while they showed some benefit from the operation, were nevertheless not completely relieved. In what respects these lacked perfection is explained in the remarks.

REMARKS ON THE CASES IN WHICH THE RESULTS WERE NOT PERFECT.

*Acute appendicitis.*—In the acute appendix cases, two or more which might justly be considered general peritonitis are included. Of the seven classed as good results, two were fairly well for a year, and then died in consequence of operations for hernia and adhesions about the scar. Another was operated on in the course of the year for adhesions and salpingitis and is still far from comfortable. Another has great bulging of scar but no other trouble. Two others report themselves well but were not examined and were therefore not considered perfect. The seventh has constipation and uncomfortable abdominal symptoms suggesting adhesions.

*Chronic appendicitis.*—Two cases were not in the least improved by the operation. The chief complaint of one was constipation; of the other, premenstrual pains. The four classed as good results had solid wounds, but also had mild symptoms attributable to adhesions, constipation, abdominal discomfort, etc.

*Inguinal hernia.*—The two good results have solid scars but complain of dragging pain more pronounced than before operation.

*Umbilical hernia.*—One case has two weak spots in scar. The patient was an extremely stout male, and the wound had burst open during convalescence, necessitating a secondary suture in the granulating fascia. A curious hernia of the liver in a small colored child was not improved by operation.

*Miscellaneous laparotomies.*—One hysterectomy has a discharging sinus, but is able to work. The other three have no objective trouble but subjective symptoms similar to those of the menopause. The four salpingitis cases still have a little discomfort—leucorrhea, weakness, etc. One has been operated again for abdominal sinus. A case of malignant ovarian cyst which had been drained and curetted through the vagina had been very comfortable and had gained weight for ten months, but recently has not been well and there is evident increase in the disease. A cancer of the rectum excised, an inguinal artificial anus made: no return of the disease, and patient is leading an active life. Two cases of gallstones had recurrence, and have since been operated again. One tubercular peritonitis has still an enlarged tube; the other has a small sinus. Both are otherwise in good health.

*Gynecological cases.*—The bad result from ventral fixation was in an old woman with pro-

lapse, in whom the ventral wound became septic. The eight good results in gynecological cases were in the main relieved but individual symptoms persisted. The one bad result in which curetting, cervix, perineum, and ventral fixation were done was anatomically perfectly successful; her original troubles were replaced by pain in her side, which she considered worse than anything she had had before.

*Genito-urinary cases.*—An enlarged prostate and a papilloma of the bladder showed no improvement. One hydrocele only reported—perfect.

*Head cases.*—The case considered as a perfect result of fracture of the base had typical symptoms at entrance.

*Bone and joint disease.*—Perfect results: Two cases necrosis of ribs; double hallux valgus. Good results: Two cases osteomyelitis of tibia; hip disease. Led to amputation: Necrosis of ulna; tuberculosis of ankle; sepsis of elbow.

*Plastic operations.*—One contracture of scar in cheek following a bicycle accident was not improved by operation. He was operated on again a year later, however, and some improvement effected.

*Fistula in ano.*—Of the two good results one still has sinuses and artificial anus. The original Littre operation was done to save life. The other has slight incontinence when he breaks wind.

*Empyema.*—One still comes to the Out-Patient Department in spite of fairly successful thoracoplasty last summer.

*Tubercular glands of neck.*—Of the two good results, one has an ugly scar and the other paralysis of the upper fibres of the trapezius. No case showed recurrence.

*Cancer of the breast.*—All had gained weight and looked well. Three had had troublesome swelling of the arm but this had improved. Only one had recurrence—two small nodules in the chest wall. A fibroma of breast had an annoying scar.

*Miscellaneous malignant cases.*—Two sarcomas in parotid region had local recurrence but good general health. A woman whose arm was amputated for sarcoma of the humerus has symptoms of brain tumor. An epithelioma of the lip and one of the nose had not recurred.

*Accident cases.*—Only two results of interest: An amputation stump of the leg which had healed by first intention had "catboils" when an artificial leg was worn six months later. Cut wrist: Suture of superficial and deep flexor tendons and ulna nerve. Perfect result in tendons; the functions of ulna nerve had not returned.

*Miscellaneous cases.*—Bullet wound, with hemothorax; entirely recovered. A knee opened and drained for gonorrheal arthritis had complete ankylosis. Three cases not operated on are interesting as resurrections. A bad tuberculosis of kidney and bladder, refused operation, went home to the country, gained thirty pounds, and is now doing a thriving grocery business, only disturbed by frequent micturition. A moribund jaundiced

case, too feeble for exploratory operation and diagnosed as cancer of the liver, is perfectly well and working every day. A pregnant woman who was sent in for appendicitis, and who showed an unaccountable pyrexia while in the ward, has been well ever since. The delivery was normal and at term.

The following cases died during or after the service:

Cases which died unoperated: One case fracture of base of skull; one case general peritonitis; two cases multiple injuries; two cases multiple burns; two cases enlarged prostates.

Cases in which death was probably hastened by operation: Cancer of stomach; cancer of liver; cancerous peritonitis; laminectomy for fracture of spine; persistent suprapubic fistula; sudden death in ward from unknown cause when convalescent from perineal section.

Cases in which death was probably not hastened, or not more than a few days, by operation: Extravasation of urine; acute intestinal obstruction; three cases tetanus; compound fracture of skull; diabetic gangrene of foot; traumatic rupture of intestine; four cases general peritonitis from appendicitis.

Cases operated on, which died after leaving hospital: Two cases acute appendicitis operated on a year later for adhesions; perineorrhaphy-cardiac symptoms; pelvic disease, probably malignant; papilloma of bladder.

DR. F. B. HARRINGTON: I think the examination and tabulation of the results a year after operation is of great value. Certainly it is of great interest to the operator. I was pleased and surprised at the number of cases which reported. Results are sometimes less successful than they seem to promise when the cases leave the hospital. On the other hand, the results at the end of a year are, I think, most encouraging. Some of the other surgeons are in the habit of making this yearly examination of cases. I think all services should do so. These results are entered into the records and, of course, increase the value of the records greatly. I believe that a discharge card should be given to each patient, requesting them, when they leave the hospital, to report at the end of a year during a certain period. To examine these cases does not require much time, and certainly is of great value, not only to the surgeons but to the house officers, who are thus enabled to see end results. If patients are requested to call during the space of two weeks, the work of examination is compressed into a short period, during which definite arrangements can be made for such examinations and time allowed for the same.

A CENTENARIAN.—Mrs. Belinda Hunt died in Brooklyn, N. Y., at the reputed age of nearly 109 years. She is stated to have been born May 3, 1793, and although a native of Virginia, she did not claim to have seen General Washington.

## Medical Progress.

### PROGRESS IN PUBLIC HYGIENE.

BY SAMUEL W. ABBOTT, M.D., BOSTON.

(Concluded from No. 19, p. 499.)

THE radical defects in the practice of vaccination throughout the United States are mainly the following:

(1) It is practically voluntary, and not compulsory, whereby a considerable proportion of the population escapes vaccination.

(2) It is not constant and uniform, but spasmodic or intermittent, and only at its best during epidemics or threatened invasions of smallpox.

(3) The laws upon this subject in the different states are not uniform. (A decided step in advance was taken by the American Public Health Association in 1886, by endorsing a system of interstate notification. In consequence of the very rapid communication between different countries at the present day, Dr. Sykes of London proposes international notification.)<sup>87</sup>

(4) Sufficient importance has not been given to the principle of revaccination after a definite period.

(5) Little or no provision is made by states or by municipalities for the keeping of exact records of the names of persons vaccinated, or for their inspection within a definite period after vaccination. (Every city and town in Massachusetts has been furnished by the State Board of Health with facilities for this purpose, but unfortunately there is no law requiring a record to be made, as in many countries.)

(6) In all countries where vaccination is thoroughly carried out and in such a manner as to secure a definite national immunity from smallpox, vaccine lymph is at present produced under government control.

(7) (Already mentioned.) A national board of health is greatly needed, to supervise the whole question of the management and control of smallpox in the United States, to secure uniform legislation, and lend its aid in stamping out this pest of nations, and in bringing our own country into line with those few countries in Europe which for several years have been able to point with pride to an almost absolute freedom from its invasion.

#### SMALLPOX IN LONDON IN 1901.

Dr. Sykes<sup>87</sup> shows that one principal source of the spread of smallpox in London was the dirty linen sent to laundries. There was no evidence that laundries spread the disease to their customers, but received it from them, and that consequently those who handled the dirty linen were exposed to great risk. Another source was the existence of unrecognized cases coming from abroad and staying in the hotels and boarding-houses.

<sup>87</sup> Smallpox in London, by J. F. J. Sykes, M.D., Medical Officer of Health of St. Pancras; London, December, 1901.



By way of preventive measures he recommends the following:

(1) International notification of smallpox.  
(2) Extension of the instructions to be given to vaccination officials, as to suspicious rashes and ailments observed by them in the course of their duties.

(3) The making of chicken-pox a notifiable infectious disease.

(4) The law should require that in every case of vaccination the operation should be thorough and efficient, and a description of the result obtained should form part of the certificate.

(5) The provision of clinical examination in doubtful cases where bacteriological examination is not available as an aid to diagnosis for the purpose of notification.

(6) Health authorities and the superintendents of smallpox hospitals should be in direct and continual communication with each other, and furnish each other immediately with any information necessary for the protection of the public.

(7) A consideration of the powers and duties of health authorities with regard to the exclusion and isolation of persons who have been in contact with smallpox.

Murphy,<sup>38</sup> in his last report upon the sanitary condition of London,<sup>39</sup> comments upon the history of smallpox. In the year 1900 there were only four deaths and eighty-six cases in the city. He states, however, that "there are reasons for believing that greater prevalence of smallpox in London than that in recent years may be expected for some time to come." His prediction is now proving to be correct.

He presents the following figures, giving the death-rates for a long series of years:

Period.	Smallpox Death-rate per 1,000 living.	Period.	Smallpox Death-rate per 1,000 living.
1851-'60	.28	1884	.020
1861-'70	.28	1885	.012
1871-'80	.46	1886	.002
1881-'90	.14	1887	.004
1891		1888	.000
1892	.007	1889	.001
1893	.040	1890	.001

In the foregoing table where — is inserted no deaths occurred.

The notified cases in London during the last eleven years were as follows:

Year.	Cases notified.	Case-rate per 1,000 living.
1890	60	.014
1891	114	.027
1892	425	.100
1893	2415	.653
1894	1183	.274
1895	980	.223
1896	225	.050
1897	104	.023
1898	33	.007
1899	29	.006
1900	86	.019

<sup>38</sup> Ninth Annual Report of the Medical Officer of Health of the Administrative County of London.

<sup>39</sup> By the term London, here, the Administrative County, containing 4,526,700 inhabitants, is meant.

None of the foregoing figures in Dr. Murphy's report, however, are so significant as to the causes of the present spread of smallpox in London as the following table, in which are presented the percentages of unvaccinated children as compared with the total births. This unvaccinated residuum constituted more than 20% in 1894, rapidly increasing, and ending with 33% in 1898, and furnishes the kindling wood of the present epidemic, and for this result and the modification of the vaccination statutes the antivaccination agitators must be held largely responsible:

LONDON VACCINATION RETURNS.

Year.	Children not finally accounted for (including postponed cases). Per cent. of total births.	Year.	Children not finally accounted for (including postponed cases). Per cent. of total births.
1872	8.8	1886	7.8
1873	8.7	1887	9.0
1874	8.8	1888	10.3
1875	9.3	1889	11.6
1876	6.5	1890	13.9
1877	7.1	1891	16.4
1878	7.1	1892	18.4
1879	7.8	1893	18.2
1880	7.0	1894	20.6
1881	5.7	1895	24.9
1882	6.6	1896	26.4
1883	6.5	1897	29.1
1884	6.8	1898	33.0
1885	7.0		

With the foregoing figures in view, it does not appear strange that Dr. Murphy should have made the prediction which he did as to the probable appearance of smallpox in London at an early date.

#### THE AERIAL DISSEMINATION OF THE INFECTION OF SMALLPOX.

The well-known report of Dr. Power upon the influence of the Fulham smallpox hospital in London, in spreading smallpox to the neighboring districts, followed as it was by similar instances in other parts of England, resulted in the transfer of all the smallpox hospitals of London to a number of ships moored in the river Thames at a point nearly twenty miles below the Tower Bridge. Now since the beginning of the present serious epidemic of smallpox in London (which is steadily on the increase), and the consequent transfer of many cases down the river to these anchored hospital ships, the disease has broken out at Purfleet, a small district on the north bank of the Thames, about a mile from the ships. Dr. Thresh,<sup>40</sup> the medical officer of health of Essex, attributes the excessive prevalence of smallpox at Purfleet to the proximity of these hospitals of the Metropolitan Asylums Board of London. Cases have followed one another in rapid succession since September last, until about one-tenth of the population has been attacked, and it has spread to adjoining parishes.

<sup>40</sup> Hospital Ships and the Dissemination of Smallpox, by Dr. J. C. Thresh; the Lancet, Feb. 22, 1902, p. 495

Vaccination has been much neglected in Purfleet: "The prevailing wind has been from the southwest, and in the cottages nearest, and exposed to the prevailing wind, out of every eight persons, one has been attacked. If such an epidemic prevalence had occurred in London there would have been over a half-million cases in the past seven months. My impression is that the infection may be carried two or possibly three miles in the direction of the wind."

In an editorial in the same issue of the *Lancet*, the same view receives substantial support in the following words: "These revelations are extremely inconvenient, and another result should be the recognition of the fact that *we cannot, by isolation, hope to get rid of smallpox*. The remedy is ready at hand and consists in placing revaccination on the same basis as primary vaccination. With the German method we shall avoid smallpox outbreaks, but with primary vaccination alone we can never hope to do so."

#### IS A SMALLPOX HOSPITAL A NUISANCE?<sup>41</sup>

(Harrop and others *vs.* the mayor and corporation of Ossett, England.) The plaintiffs did not object to the use of the proposed hospital for other infectious diseases than smallpox, but that disease they alleged was liable to be spread by aerial convection. The hospital was only for eight patients; only one had been so far received. It was 250 yards from a valuable mansion, 100 yards from the premises of a shoddy factory, about the same distance from the warehouse, and about 170 yards from a dwelling-house. A six-foot wall, enclosing an open space of 40 feet, surrounded the hospital.

*Held*: That the action must be dismissed with costs. Judge Romer, in giving his decision, said, *inter alia*: To sustain a *quia timet* action, the plaintiff must establish a strongly or extremely probable case that the apprehended mischief must arise. Here the evidence was most conflicting. If badly constructed, a smallpox hospital might be dangerous, especially if large and badly conducted, and the neighborhood crowded, but if well conducted, he was not satisfied that it would be such a source of danger as to constitute a legal nuisance. Considering the size, situation, and general character of the hospital in question, it would not be such a substantial danger as to justify him in granting an injunction. Moreover, there had been smallpox in the neighborhood, which had not caused ill results. It was not necessary to deal with danger which it was said would arise when the plaintiffs' land was built on, until the danger arose. He thought there was no danger from drainage. Further, all the witnesses concurred that vaccination offered complete protection, and by taking this reasonable precaution all parties could protect themselves. Further, the case was not one of public, but of private, nuisance.

<sup>41</sup> Practical Guide to the Public Health Acts, by T. W. Hime, B.A., M.D.; Appendix, p. 21, London, 1901.

#### THE TECHNIQUE OF VACCINATION.

The following are the revised instructions given by the Local Government Board of England to vaccinators under contract:<sup>42</sup>

(1) Except so far as any immediate danger of smallpox may require, the public vaccinator must vaccinate only subjects who are in good health. As regards infants, he must ascertain that there is not any febrile state, nor any irritation of the bowels, nor any unhealthy state of the skin, especially no chafing or eczema behind the ears, or in the groin, or elsewhere in folds of skin. He must not, except of necessity, vaccinate in cases where there has been recent exposure to the infection of measles, scarlatina or diphtheria, nor where erysipelas is prevailing about the place of residence.

(2) A certificate of postponement must be given by the public vaccinator in the form prescribed by the Local Government Board or to the like effect: (a) If in his opinion the child is not in a fit and proper state to be vaccinated, or (b) if in his opinion the child cannot be safely vaccinated on account of the condition of the house in which it resides, or because there is or has been a recent prevalence of infectious disease in the district; and in any such case the public vaccinator is required forthwith to give notice of such certificate to the medical officer of health for the district in the proper form.

(3) All public vaccinations are to be performed with glycerinated calf lymph or with such other lymph as may be issued by the Local Government Board. If the parent or other person having the custody of the child requires that it shall be vaccinated with lymph issued by the Local Government Board, the vaccination must be performed with such lymph.

(4) The public vaccinator must keep such record of the lymph he uses for vaccinating as will enable him always to identify the origin of the lymph used in each operation. He must not employ lymph supplied by any person who does not keep an exact record of its source.

(5) The public vaccinator must keep in good condition the lancets or other instruments which he uses for vaccinating, and he must not use them for any other purpose whatever. When he vaccinates he must cleanse and sterilize his instrument after one operation before proceeding to another, and must always, when vaccinating, have with him the means of doing this. When once he has unsealed a tube of lymph he must never attempt to keep any part of its contents for the purpose of vaccination on a future occasion. Under no circumstances should the mouth be applied directly to the tube in which the lymph is contained for the purpose of expelling the lymph. In the case of ordinary capillary tubes an artificial blower may properly be employed for this purpose.

(6) Vaccination should at every stage be carried out with aseptic precautions. These should

<sup>42</sup> See Twenty-eighth Annual Report of the Board for 1898-1899.

include: (1) The cleansing of the surface of the skin before vaccination; (2) the use of sterilized instruments; and (3) the protection of the vaccinated surface against extraneous infection both on the performance of the operation and on inspection of the results. Advice as to the precautions to be taken in this respect until the scabs have fallen and the arm has healed should always be given to the person having the custody of the child.

(7) In all ordinary cases of primary vaccination the public vaccinator must aim at producing four separate good-sized vesicles, or groups of vesicles, not less than half an inch from one another. The total area of vesiculation resulting from the vaccination should not be less than half a square inch.<sup>43</sup>

(8) The public vaccinator must enter all cases in his register on the day when he vaccinates them, together with all particulars required in the register up to and including the column headed "Initials of the Person Performing the Vaccination." The results of the vaccination, which must be attested by the initials of the person who inspects the case, are to be entered upon the day of inspection. In cases of successful primary vaccination the public vaccinator must record the number of separate scarified areas, punctures or groups of punctures made, and the number of separate normal vaccine vesicles or groups of vesicles which have been produced. In cases of revaccination, he must register as "successful" only those cases in which either vesicles, normal or modified, or papules surrounded by areolæ have resulted. When any operation (whether vaccination or revaccination) has to be repeated owing to want of success in the first instance, it should be entered as a fresh case in the register.

#### VACCINAL IMMUNITY.

The following experiments relating to the production of vaccinal immunity are stated in Dr. Cory's lectures on the Theory and Practice of Vaccination (1898):

"The first experiment was, instead of putting all the vesicles on the arm at the time we first vaccinated it, we have put on only one; the next day we put on another, and so on until the tenth day, and in both cases which we had the opportunity of so vaccinating we found that the ninth day was the last day we could produce any specific effect from the vaccination. It was curious to observe how the vesicles that were subsequently put on to the first developed. We will take that vesicle which was vaccinated four days after the first as an example. This vesicle arrived at its maturity five days after it had been inoculated, or on the ninth day from when the first had been inoculated. Moreover, it hurried through its stages, overtaking gradually the first vesicle, and both maturing together on the ninth day. That vesicle which was inoculated on the seventh day

reached its maturity also on the ninth day from when the first vesicle was inoculated, or the second day from which it had been inoculated—in fact, all the vesicles matured on the ninth day from which the first had been inoculated. After the ninth day no further specific effect could be produced by inoculation of vaccinia."

M. Trousseau, in his fourth edition of "*Clinique Médicale*,"<sup>44</sup> describes himself as having made similar experiments with the same results, and we know from Mr. Bryce, as long ago as 1809, that this phenomenon had been observed, for on page 173 of his book the following passage will be found:

"That if during the regular progress of cowpox a second inoculation be performed a certain number of days after the first, the affection produced by this second inoculation will be accelerated in its progress so as to arrive at maturity, and again fade, at nearly the same time as the affection arising from the first inoculation, and that this will take place although the constitutional affection be so slight as otherwise to pass unnoticed." In passing, we may observe also that the same observation had been made with regard to the vesicle produced by the inoculation of smallpox—another piece of undesigned evidence of the close affinity of the two diseases.<sup>45</sup>

The second experiment was, supernumerary fingers were vaccinated on the tip, and the finger removed on different days after vaccination. For instance, one child was vaccinated on the tip of its finger, and the finger, together with the vaccine vesicle, was removed on the fourth day from the time it had been vaccinated.<sup>46</sup> About a month after the child was again vaccinated on the arm. The second vaccination ran rapidly through its course, reaching its maturity on the fifth day, and then began to decline. And it was further found in other children who had supernumerary fingers that, if the finger with the vaccine vesicle was removed on the second day after vaccination, then the subsequent vaccination performed a month after the stump had healed ran seven days' course. In the former case four and five make nine, and in the latter two and seven make nine. All the supernumerary fingers obeyed the same law, which was, that on the assumption the vesicle took nine days to mature, the sum of the times of the two vaccinations always equaled nine days.<sup>47</sup>

Titeca<sup>48</sup> believed that vaccination could be made perfectly protective by repeating the operation after a week or more and until it ceases to "take." He showed this by experiment. Warlomont gave to this practice the name of "vaccinization." It is well known that auto-vaccination often occurs among children by the act of scratching the mature vesicle and then ac-

<sup>43</sup> Vol. I, p. 121.

<sup>44</sup> Practical Observations on the Inoculation of Cowpox by James Bryce, published in 1809; p. 159, et seq.

<sup>45</sup> Paper by Dr. Cory in the transactions of the Epidemiological Society, vol. IV, p. 197, for the years 1875-1881.

<sup>46</sup> From Lectures on the Theory and Practice of Vaccination, by Robert Cory, M.A., M.D., London, 1898, p. 48-50.

<sup>47</sup> La pratique de la Vaccine; Ce quelle est, ce qu'elle devrait être. Bulletin de l'Acad. de méd. de Belgique, XIX, No. 6.

<sup>48</sup> Dr. Cory says upon this point: "There can be little doubt that it is better to vaccinate in a multiple number of places than to endeavor to make one large vesicle equivalent to the smaller ones." (Lectures on Vaccination, London, 1898, p. 84.)

oidently inoculating a new place, the second, or autovaccination, usually running a shorter course than the original, or primary, vaccination.

**Insusceptibility.**—It is quite probable that under the most favorable circumstances for vaccination (absolutely fresh lymph in each instance), insusceptibility in primary cases does not exist.

Dr. Robertson says, in the twenty-fifth "Report of the Registrar General of Scotland": "Constitutional insusceptibility, as expressed in the returns, is virtually a confession from an operator that he has made three unsuccessful attempts to vaccinate a child without ascertaining the cause of his failures, and the fact that a child has a certificate of insusceptibility does not absolve its guardians from the duty of having the reality of the conditions tested from time to time."

Dr. Cory says<sup>40</sup> upon this point: "Of my own vaccinations, I may say that I have in my time performed over 38,000 primary operations with human or with calf lymph, and that it has only once fallen to my lot to fail twice at an attempt at vaccination. This subject was a ten-year-old child, in whom, as stated by its mother, vaccination had been attempted on previous occasions without result. My operation failed at the second attempt, and I did not get the opportunity to try a third time."

Dr. Thorne, chief medical officer of the Local Government Board, says:<sup>41</sup> "I would point out that the number of consecutive primary vaccinations by the board's own officers, without the occurrence of a single instance of so-called insusceptibility, now reaches 107,180."

#### THE COMMERCIAL IMPORTANCE OF VACCINATION.<sup>41</sup>

Since the unfortunate modification of the Vaccination Law of England, enacted in 1898, very many children have been exempted from vaccination. The effect of this disastrous piece of legislation is already showing itself in more ways than one. Seventy English life insurance companies have required a renewal of their policies. Thirteen companies absolutely refuse to insure unvaccinated children, fifty-seven companies consider such persons as exposed to an extra risk, and refuse to pay the amount insured if the policy-holder dies of smallpox, while only ten companies continue the old form of contract. Many public departments refuse to employ unvaccinated persons. The Duke of Norfolk (postmaster general), as a peer of the realm, voted for the conscience bill, but, as a matter of public policy, does not allow unvaccinated persons in the postal service. The same is also true of the heads of the War and Navy Department, each of whom voted for the conscience bill, but allow no unvaccinated persons in their branches of public service. The first lord of the treasury has adopted

the same measure. In some quarters of the city landlords have turned out tenants who refuse to be vaccinated, and have placed signs upon their houses bearing the inscription "Not for unvaccinated tenants."

### Reports of Societies.

#### THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STOREE, M.D., SECRETARY.

MEETING of Jan. 21, 1902, DR. J. B. SWIFT in the chair.

DR. G. J. ENGLEMAN read a paper entitled BIRTH- AND DEATH-RATE AS INFLUENCED BY OBSTETRIC AND GYNÆCIC PROGRESS.<sup>1</sup>

DR. E. M. HARTWELL: As regards the general subject of birth-rates in America, it is well to remember that they are far from satisfactory, and must be taken with some degree of allowance. Here in Boston births are not returned promptly or, in all probability, accurately. Another ratio than that to the total population is needed, as we live in a city that is largely recruited by immigrants, mostly of the male sex. Our mortality statistics, owing to the legal requirement of death certificate as a prerequisite for a burial permit, are, of necessity, much more trustworthy than our birth and marriage certificates.

I have wanted for a long time to publish the number of births by months, in the monthly bulletin of the statistics department, but such figures would be without significance, as under the present system the number of births registered in a given month do not represent the actual births of the month. Two or three months before the time when he has to make returns to the State House, the city registrar has a general round-up of babies made, in order to ascertain the number of births within the year. The present condition might well be improved, but part of the trouble is owing to the incomplete and dilatory returns of births by physicians. Within ten years it was discovered that a certain man reported in one year some ninety fictitious births for the sake of the quarter of a dollar paid for each certificate. But as the law now stands those fictitious births figure in the birth-rates, as they cannot legally be expunged from the records.

In the statistical department I have not yet taken up comparative mortality tables, and would be loth to do so until there is an improvement in the tables of population. There has been an epidemic of lowered death-rates in American cities. Inaccurate and boastful estimates of the annual increase of population in the intercensal years helps to lower death-rates. I know of one city in which the method of estimating population practically amounted to guessing at the number of houses and multiplying by five. I can show you three several estimates of the population of Balti-

<sup>40</sup> Lectures on Vaccination, p. 73.

<sup>41</sup> Twenty-seventh Annual Report of the Medical Officer of the Local Government Board, p. viii.

<sup>42</sup> Rev. d'Hygiene, 1899, p. 1055.

<sup>1</sup> See page 508 of the Journal.

more for the year 1898, each stated to be "official." These were (1) 500,000, (2) 625,000 and (3) 541,000. On the latter the death-rate was based. In 1900 the United States census gave Baltimore a population of only 509,000. In view of such uncertain data, I refrain from comparing death-rates. I think that the death-rate in Boston is more accurately given than in most other cities. In studying birth statistics we need better material to work with. If we could get the detailed material concerning Boston which is contained in the United States census schedules, much of which will never be published by the Census Bureau, we could make some very instructive tables. I have taken some steps toward procuring the material. It is most desirable, I wish I could say it is probable, that the city shall appropriate \$5,000 to pay for copies of the Boston schedules for 1900, which will be used as the basis of comparison for a hundred years.

The last annual report of the city registrar is a great improvement on its predecessors. It contains a number of tables showing death, marriage and birth statistics by wards. The multiplication of such tables will enable us to attain clearer ideas of the local conditions which obtain in different parts of the city, and may serve to suggest more effective measures for reducing the death-rate.

I trust that Dr. Engelmann's paper will be published and widely read. It should arouse discussion as to the reasons for the deplorable conditions he has depicted. If our birth-rate is diminishing, it is a matter of capital importance.

It would, perhaps, be better if the birth-rate were based upon the number of married couples instead of the total population. It is largely owing to Dr. Engelmann's activity, I may say, that the forthcoming census report will contain tables relating to fecundity.

DR. ALFRED WORCESTER: I am inclined to think that the number of births reported is much less than those actually occurring. Families employing midwives or relying upon the kindly aid of neighbors are not apt to bother about reporting births, while the yearly house-to-house visitation to find out whether any children have been born in the past year is apt to be most slipshod; so, too, physicians who go outside of their own town to attend confinement cases, are very apt to forget to make any reports, being under no compulsion to do so.

DR. E. O. OTIS: In listening to these disappointing results that Dr. Engelmann has told us, we cannot but find hope in the possible faultiness of the statistics to which Dr. Hartwell has alluded. It is interesting that the French Canadians have such large families, far larger than women of the same stock have in France, women gaining in importance with the number in their family.

DR. J. G. BLAKE: As far as the death-rate in confinement is concerned, it seems to me that new methods of treatment are needed. I think that the old methods of treatment in difficult cases

have been developed as far as is practicable, and that to get better results we must have recourse to new methods, like Cæsarean section, for instance. Certain cases cannot stand the shock of giving birth to a child. If Cæsarean section can be developed far enough it might give some hope in such cases. As to birth statistics, any applying to Boston must be mere conjecture. In the old days we never bothered about reporting cases. I am confident that even now a more accurate compliance with the law would give a far better birth-rate. Many a child is born in Boston and moves out of the city, of whose existence the registrar has no idea.

DR. ENGELMANN: The figures which I have given are corrected figures. I have myself asked a sufficiently large number of women in various dispensaries, "How many children have you had?" to have been struck with the closeness of the result thus obtained with the corrected figures for Massachusetts and Michigan.

As to reducing mortality in childbirth, it seems to me that some hospitals, with their mortality of .05%, have shown what can be done. The trouble is not with the hospitals, but with the profession at large. Now the hospitals, even with all their desperate cases, give better results than those of private practice.

DR. HARTWELL: There is one gleam of hope in Dr. Engelmann's figures. While there has been a reduction in the maternal mortality, the number of stillborn children has not fallen correspondingly. It may be that there is an irreducible minimum of stillbirths, due possibly to conditions incident to the immense increase of our urban population in late years. After the inhabitants of our great cities become adapted to an urban environment, it is quite conceivable that birth- and death-rates may improve.

DR. BLAKE: I would like to bear testimony to the supreme excellence of the aseptic training that I see among the younger physicians by whom I am called in consultation. I should also like to ask Dr. Green, as representing our lying-in hospital, if in his judgment there is any direction in which advance will improve the present maternity statistics.

DR. C. M. GREEN: I cannot say that I see any great chance for improvement except possibly in the treatment of eclampsia, to which a relatively large number of the present deaths are due. We do not as yet really know very much about eclampsia anyway, and it is possible, with more definite knowledge about the disease, great advance in methods of treatment will be made.

#### ASSOCIATION OF AMERICAN PHYSICIANS.

ABSTRACT REPORT OF THE SEVENTEENTH ANNUAL MEETING, HELD IN THE NEW WILLARD HOTEL, WASHINGTON, D.C., APRIL 29 AND 30, 1902.

#### FIRST DAY.

The opening session was called to order by the President, DR. J. C. WILSON of Philadelphia,

who immediately presented the annual **PRESIDENTIAL ADDRESS**.

He referred to the early history of medical organization in this country, the beginning being far back. Two organizations, one in Boston and one in New York, but both short lived, preceded the oldest existing medical society in this country, the Litchfield County Medical Society of Connecticut, which was founded in 1765 and is still flourishing. After this societies were formed in New Jersey, Massachusetts, Philadelphia, and finally in 1847 the American Medical Association came into being.

He stated that the services rendered to the profession, and through the profession to the people, by this great association, with its constituent state and county societies, could not be overestimated. It has brought the profession together and given it solidity. It has not only encouraged the formation and growth of local societies, but has proved a constant stimulus to activity on their part. It has by means of its section work and excellent journal set a high standard of professional attainments and fostered among physicians a deep sense of responsibility and a lofty conception of the duties and privileges of their calling.

He referred to the defects that had led to the recent reorganization, the effect of which can only be shown in the course of time.

Following this period in the organization of special societies, the basis of which was set forth by Dr. Delafield in his presidential address, in the statement that "it is the desire to have an association in which there will be no medical politics and no medical ethics; an association in which no one will care who are the officers and who are not; in which we will not ask from what part of the country a man comes, but whether he has done good work and will do more; whether he has something to say worth saying and can say it. We want an association composed of members each one of whom is able to contribute something real to the common stock of knowledge and where he who reads such a contribution feels sure of a discriminating audience." These principles have been carried out faithfully, and as the transactions prove with great success.

The address closed with tributes of respect to the members who have died during the past year, including Drs. J. T. Metcalf, who was chosen an honorary member when the society was first organized, Meredith Clymer, and William Waring Johnston, an original member of the association and for many years its treasurer, and at the time of his death a member of the council.

The following suggestions were thrown out for the consideration of the members and possible future action:

(1) That in many instances the form of communication best suited for publication is not that adapted to an audience such as this, and that details of clinical history or of experiments and copious quotations from the literature can often be omitted in the reading of papers without detriment to their value.

(2) That the papers should be handed to the recorder directly after the meeting, or with as little delay as is necessary, to enable him to issue the transactions promptly.

(3) That the wise suggestion of Dr. Da Costa, repeated by Dr. Welch, our last president, in regard to the honorary list, be considered by those "who have been members for a long time, but find it inconvenient to attend regularly and yet wish to remain with us."

(4) That the time is now at hand when our membership should be increased to 150.

(5) That the number of new members elected in any one year should not exceed ten.

An amendment to the constitution providing for the increase of the possible membership to 150 was introduced, and under the rules, laid over for a year.

The scientific program was then taken up and the first paper presented by DR. B. K. RACHFORD on

#### COMPARATIVE TOXICITY OF AMMONIUM COMPOUNDS; A STUDY IN AUTO-INTOXICATION.

He undertook to study the comparative toxicity in mice of such salts as may be formed by the union of ammonium, potassium, sodium, calcium and magnesium, with such acid ions as may be present in the body in health and disease. From these experiments he drew the same conclusions as those which he expressed before this society three years ago, namely, "that the xanthin bodies were the important toxic principles in my 'final fluids,' but that their toxicity was increased by small quantities of ammonia in combination with them. The quantities of ammonia, however, required to markedly increase the toxicity of the spinal fluids was much too small to give toxicity to any of the inorganic acid ions studied in this work. From these experiments I am prepared to state that the toxicity of my 'final fluids' were not due solely to the ammonia they contained, but to other toxic agents found in migrainous but not in normal urines, without which the ammonia would have been innocuous. For these reasons I adhere to the belief that the ammonium compounds of the xanthin bodies gave toxicity to my 'final fluids' and that these same compounds are toxic agents in producing migraine and other lithemic disorders which I have described in my previous papers as being due to xanthin bodies alone. This point seems plausible when one remembers that the functionally incompetent liver, which is an important etiological factor in all these conditions, may, by the fall of its urea-forming function, throw into the general circulation sufficient ammonia and uric acid leucomaines to combine and in this way diminish the excretion of urea and increase the excretion of ammonia and xanthin bodies."

The study was made of the relative toxicity of such ammonium compounds as might possibly occur in the body during health and disease and also the relative toxicity of such salts of other alkalis which might possibly play a rôle in the



production of auto-intoxication. Ammonium, sodium, potassium, calcium and magnesium were all studied in their various combinations. Ammonium was found to be quite toxic with the ions of hydrochloric, nitric and sulphuric acids, while the sodium salts of the same acids were comparatively nontoxic. If combined with an organic acid the ammonium ion rapidly loses its toxicity. Potassium seems to be about one-half as poisonous as ammonia in its salts of inorganic acids. Magnesium is with some salts more poisonous than ammonium, while calcium has but slight toxicity. The acids were tested in connection with a nontoxic base like sodium, and it was found that the inorganic acids were comparatively nontoxic, while the organic acids add to the toxicity of the alkaline bases.

AN ESTIMATE OF THE AMOUNT OF TOXIN IN THE BLOOD OF A HORSE INFECTED WITH TETANUS.

DR. B. MEADE BOLTON read this paper. He referred to the outbreak of tetanus in St. Louis last year which was shown to be due to the use of diphtheria antitoxin which contained tetanus toxin. The antitoxin used in those cases was obtained from a horse that exhibited symptoms of tetanus two days after the blood was drawn, and he was able to demonstrate the presence of a considerable amount of toxin in this serum. There is no evidence in literature of such a finding having been made previously under similar circumstances. All the known facts before have seemed to show that the toxin in some cases, whether it was injected into the blood or developed in the tissues from infection, disappeared from the blood, while in other cases, even though a minute quantity had been used, it could be found in the blood. In experimental work it was found that the toxin remains circulating in the blood in guinea pigs, while in rabbits it disappears from the blood and combines with the tissues. Dr. Bolton's work consisted in inoculating horses with garden soil known to contain the tetanus organism by the result of tests upon small animals and also by inoculating one horse with a culture that produced tetanus in smaller animals. The blood from all the horses was drawn at intervals of twenty-four hours after inoculation and the amount of toxin in the serum determined by the injection of guinea pigs and other small animals. It was shown that the toxin makes its appearance in the blood of the horse several days before any symptoms of tetanus are to be observed, and that it gradually increases until about two days before the symptoms become noticeable, after which it rather suddenly diminishes and even disappears in some cases. The amount of toxin varies considerably in different cases.

THE ETIOLOGICAL SIGNIFICANCE OF THE ACID RESISTING GROUP OF BACTERIA AND THE EVIDENCE OF THEIR MECHANICAL RELATIONSHIP TO THE BACILLUS OF TUBERCULOSIS.

DR. A. C. ABBOTT read this paper. He remarked that it was somewhat disturbing to learn

that there exists a group of bacteria that resembles the tubercle bacilli in staining qualities and in appearance. They retain the stain to a certain extent after treatment with acids, and consequently have been called the acid-resisting bacteria. They have been found in the sputum, in gangrenous lungs, from the urine, etc., and lately a great deal of attention has been attracted to them by their discovery in butter and milk. Dr. Abbott and his assistants have conducted an investigation of these organisms, the expenses of which have been borne by the Rockefeller Institute. He found that they are, microscopically, strikingly like tubercle bacilli, and that they do resist acid decolorization to some extent. If the old method used for staining the tubercle bacillus and decolorizing by nitric acid be used, these bacteria do not retain the stain longer than one-third the time of the tubercle. If injected into animals under certain conditions they cause nodular growths that somewhat resemble tubercles. There is, however, no particular evidence of caseation and no evidence whatever of dissemination. In other words, the picture presented is less that of the tuberculous nodule than that of the actinomycotic organisms. Inoculation experiments failed to produce tubercular nodules, the results being either the production of granulation tissue at the point of inoculation or nothing at all. Even if the inoculations were made into the jugular vein directly, there was no evidence of dissemination. Injection directly into the lungs produced no dissemination and resulted only in the production of a mass-like granulation tissue. Dr. Abbott thought that these organisms might be dismissed from consideration, in so far as any danger of their causing trouble by infection from milk and butter is concerned. More work has yet to be done to show how closely they are related to the tubercle bacillus. It is shown that they grow as actinomyces, and the work of others has shown that the bacillus tuberculosis under particular methods of inoculation may likewise develop as actinomyces. These last experiments were confirmed by Dr. Abbott with the tubercle bacillus, an organism being secured that strongly resembles this acid-resisting group.

In discussion, DR. FLEXNER said that he had had the privilege of examining Dr. Abbott's specimens and felt that there could be no doubt that the lesions produced by this group of organisms were not true tubercles. The whole lesion studied together reminded one of granulation tissue with a large number of giant cells. He thought the lesions were very similar to those produced by the blastomycetes.

DR. MELTZER referred to the case of a man who had for many years been considered to be tuberculous, but whose sputum on careful examination showed these peculiar organisms. He asked for information about the methods of staining, particularly the alcohol method.

DR. ABBOTT replied that early in his work it became evident that the old method of staining and decolorizing by nitric acid gave perfect and

sure results and that he had ceased to experiment with other stains.

#### THE HISTOLOGICAL ALTERATIONS OF CYTOTOXINIC INTOXICATION.

DR. SIMON FLEXNER presented this paper. He said that the studies of Bordet, Ehrlich, Metchnikoff and others have proven that many kinds of body cells, when injected into alien animals, give rise to the production of cytotoxins agreeing in many physiological properties with bacterial and other toxins. Among other effects they seem to act specifically upon cells of the kind from which they were derived. It has now been established that practically all the cells of an animal can be converted into toxic agents from this animal, if they be introduced into an animal of another species, and it has been shown that the cytotoxin of one cell acts specifically upon similar cells, for instance, the cytotoxin of kidney cells acts upon the kidney, of the nerve cells upon the nerves, etc. Dr. Flexner worked particularly with the cytotoxins of the lymphatic organs and found that the lesions produced in the glands are general throughout the body, just as they would be after bacterial toxins. An effort was made to determine whether it would be possible to produce antolysines, and there is evidence that this can be done for certain of the important cells of the body, that is, for certain of the viscera. The work has some bearing upon the question of terminal infections and shows that in the majority of cases of such infections there is a great reduction of the complement of the circulating blood, if not an entire absence of it.

#### A STUDY OF BACTERIAL CELLS.

DR. V. C. VAUGHAN read this paper. He referred to the apparatus described by him last year for the growing of large numbers of bacteria, which he said had proven very satisfactory. By its use he was able to raise various microorganisms by the acre and thus secure a sufficient quantity to study chemically their constituents, particularly their pigments. The bacillus prodigiosus has a pigment which gives a spectrum very closely resembling that of oxyhemoglobin. It is soluble in water and can be used as a stain for cotton, wool or silk goods. Two coloring matters are obtained from this pigment, one yellow and the other a beautiful pink, and Dr. Vaughan exhibited some silk handkerchiefs colored therewith.

Subjecting masses of the germs to alcohol he extracted their toxins, and evaporating the alcohol off, obtained it in the form of a dried powder. Some of these toxins were capable of being split up into two or more forms, for instance, the diphtheria organism produces a soluble toxin against which antitoxin protects, but another toxin is left after the first washing which may or may not be protected against by the antitoxin, and a third toxin is still obtainable from the residue against which antitoxin offers no protection. In all the work of splitting these toxins it was evident that

the residues were always less toxic than the whole original substance, and if heated further it rapidly lost its toxicity.

#### ON SOME EFFECTS OF TOBACCO ON THE TISSUES OF RABBITS.

DR. I. ADLER read this paper. It was merely a preliminary report on the effects of chronic tobacco poisoning. The experiments were made upon rabbits confined within proper limits and fed upon cabbage mixed with an infusion of tobacco exclusively. The tobacco strength of the infusion was gradually increased until the animals were taking an enormous quantity of tobacco extract. They rapidly acquired a taste for it and all appeared quite healthy until killed for examination. The animal killed at the end of the first month was normal in all respects except that careful microscopic examination revealed an extensive infiltration of round cells around the interlobular vessels and smaller bile ducts of the liver. An animal killed after two and a half months shows an enlarged liver, pale in color and granular in appearance, the liver lobulation being very pronounced, quite contrary to the usual appearance in the rabbit. The proliferation of fibrous tissue follows the tract of the portal vessels and bile ducts. The liver cells are absolutely normal and the process is restricted entirely to the interstitial tissue.

The first beginning of interstitial proliferation in the kidney tissue appears at the end of four months. The experiments had not gone beyond that stage and it is impossible yet to say whether interstitial processes in the liver will be progressive.

In the course of discussion and in response to a question from Dr. Adami, Dr. Adler stated that he would not at present attempt to draw an analogy between his findings and a cirrhosis of the liver.

#### A CASE OF HEMATOPORPHYRINURIA.

DR. JAMES TYSON reported this case. The patient, a woman 50 years of age, had been taking from 20 to 60 gr. of sulphonal nightly for several years to produce sleep. In November she complained of abdominal pain associated with tympany, so severe as to require hypodermic injections of morphin sometimes twice a day. She was first seen by Dr. Tyson in December, presenting in addition to the above symptoms dry tongue and feeble, rapid pulse. Examination of her urine showed the presence of hematoporphyrin. Since the introduction of sulphonal into practice in 1888 about a hundred cases of this affection have been reported from its use; in only a small number of these cases, however, was the substance isolated from the urine and chemically identified, in most instances the color of the urine being considered as sufficient evidence, apparently, for diagnosis.

DR. EITHINGTON, in discussion, reported a case occurring after the administration of two 15 gr. doses of trional.

DR. STARR also reported a case occurring after the use of trional.

## PNEUMOCOCCIC ARTHRITIS.

DR. JAMES B. HERRICK read this paper. He stated that this affection was a rare one, appearing oftenest during, or shortly after, croupous pneumonia, and most frequently in men. It may be primary in the joint and severe and even fatal constitutional symptoms may result from the toxemia thus induced. Previous damage to a joint, as by trauma, rheumatism or gout, favors the localization. The lesions are usually nonarticular, the knee being the joint most frequently affected. Exploratory aspiration with bacteriological examination of the fluid is the only means of recognizing the pneumococcic nature of the inflammation. The prognosis is grave, mortality 65%, largely because of the accompanying toxemia and the involvement of other more vital parts of the body. Cases of suppurative pneumococcic arthritis should be treated by immediate incision and drainage. Serous arthritis may often be healed by aspiration, rest and compression.

In discussion DR. OSLER remarked that one of his assistants had recently worked up this subject carefully and had divided the cases into three groups, one with local symptoms mainly, the second group that follows or is associated with pneumonia, and a third group in which the arthritis is associated with a general pneumococcic septicemia. He related the history of one case of the latter kind in which it was difficult to say where the primary lesion was. Blood cultures showed numerous pneumococci, as did also aspiration of the joint, and autopsy showed an extensive pneumococcic meningitis, arthritis and general infection of the blood.

DR. MUSSER reported a somewhat similar case with involvement of the joints, beginning with the sternoclavicular, but the patient finally recovered.

## THE PATHOLOGY OF HERPES LABIALIS AND OF HERPES ZOSTER OCCURRING IN AN ACUTE CROUPOUS PNEUMONIA.

DR. W. T. HOWARD, JR., presented this paper. He concludes from his examination of the lesions in the ganglion and in the skin in herpes labialis and in herpes zoster of pneumonia, that the conditions are the same, and that as they have the same pathology as ordinary herpes zoster, it seems probable that the various forms of herpes are identical.

DR. THOMSON remarked that it used to be considered a favorable sign, clinically, when herpes appeared in the course of a croupous pneumonia.

(To be continued.)

## Recent Literature.

*Trichinosis in Germany.* Published by the U. S. Department of Agriculture, Bureau of Animal Industry. By C. W. STILES, Ph.D., and ALBERT HASSALL, M.R.C.V.S. Pp. 211. Washington, D.C. 1901.

This interesting document has for its object, as stated in the introductory portion, "to judge the

value of the microscopic inspection, as shown by German health statistics for 1881-1898, in order to inquire whether this system gives a protection proportionate to its expense, hence whether we should introduce it into this country; also to see whether any cases of trichinosis have been definitely traced to American pork bearing the inspection stamp of the bureau, thus inquiring whether the attacks upon American pork printed in the German agrarian press have any foundation in German health and mortuary statistics. The German law prohibits the sale of trichinous pork, regardless of the condition of the parasites, whether dead or alive."

The report is divided into the following topics:

- (1) General remarks upon trichinosis in Germany;
- (2) a statistical review of trichinosis in Germany during the 18 years 1881-1898;
- (3) European cases of trichinosis of alleged American origin;
- (4) a very full bibliography of the subject.

The author shows by an exhaustive analysis of German reports that there had occurred in Germany in these 18 years 6,329 cases of trichinosis, and of these 318 were fatal. (This is a very much larger number than had occurred in the United States during the same period and in a larger population.) The reported cases were due to the use of pork of local origin, and in very many instances it was shown that the pork in question had been inspected and reported as free from trichinae. Moreover, it was shown that during the nine years in which American pork was excluded from Germany there was an annual average of 454 cases and 30 deaths, while in the period since American pork was readmitted, this annual average fell to only 149 cases and 4 deaths.

A further analysis of the 24 outbreaks, in which the pork was alleged to be of American origin, shows the evidence to have been of the most flimsy and worthless character, the statement of Zundel being especially worthy of comment as an example of *reductio ad absurdum*.

The author concludes that "a compilation of the German evidence fails to show that a single case of the disease has been traced to the more than 200,000,000 pounds of American pork exported to Germany during the years 1892-1898, and a study of the statistics does not support the view that the microscopic inspection gives a greater protection than the curing methods. He is therefore forced to the conclusion that, from the practical experience of the German people with immense quantities of American pork, there is no sanitary justification for the numerous systematic and too often rabid attacks upon this article of diet, which is so important to thousands of German factory hands."

With reference to the introduction of a system of microscopic inspection in this country the author states "that it is much better to rely upon our methods of curing and cooking rather than to expend between three and four million dollars annually to introduce a system which has a decided tendency to give the public a false sense of security and, furthermore, a system which would un-

questionably result in extending that exceedingly unhygienic German custom of eating raw or rare pork."

*The Four Epochs of Woman's Life.* A Study in Hygiene. By ANNA M. GALBRAITH, M.D., Author of "Hygiene and Physical Culture for Women," Fellow of the New York Academy of Medicine, etc. With an Introductory Note by John H. Musser, M.D., Professor of Clinical Medicine, University of Pennsylvania. 12mo volume of 200 pages. Philadelphia and London: W. B. Saunders & Co. 1901.

In the announcement of this work it is stated that the book is written for the laity and that "it contains those truths of which every woman should have a thorough knowledge."

The book contains a variety of information, some of which is true and some of which is at least open to question. None of its truths are new to any well-educated physician, and it is difficult to conceive that any intelligent physician would desire to have spread broadcast among women much of the information which is in the book. For example, does anyone think it is wise for a young maiden to be acquainted with the anatomy of the genitalia, with the theories and anomalies of menstruation, with "The Condition of the Hymen as a Proof of Virginity," or for a woman at the menopause to know that the prominent symptoms of the climacteric may be marked debility, intense nervousness, nervous prostration, melancholia, hysteria, irritable heart, insomnia, Bright's disease, as well as others. Among other things, the book contains "a glossary of those medical terms necessary to a thorough understanding of the subject under discussion," in which are defined such words as cohabitation, coitus, continence, erection and gonorrhea. It is to be feared that our English friends, when they see this work, will point it out as another example of American book-making.

*Atlas and Epitome of Otology.* Saunders' Medical Hand-Atlases. By GUSTAV BRUHL, M.D., of Berlin, with the collaboration of PROF. DR. A. POLITZER of Vienna. Edited, with additions, by S. MACCUE SMITH, M.D., Clinical Professor of Otology, Jefferson Medical College, Philadelphia. With 244 colored figures on 39 lithographic plates, 99 text illustrations, and 292 pp. of text. Philadelphia and London: W. B. Saunders & Co. 1902.

This excellent volume contains what is probably the best collection of colored plates of the ear, both of normal and of pathological conditions, of any handbook published in the English language. In addition to this the text is presented in an unusually clear and direct manner. The association of Professor Politzer in the preparation of the work, and the use of many valuable specimens from his collection, notably enhance the value of the treatise. The work contains everything of importance in the elementary study of otology, and, without question, is a most valuable contribution to medical literature.

## THE BOSTON Medical and Surgical Journal.

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### STATE PRODUCTION OF VACCINE MATERIAL.

EARLY in the present session of the General Court of Massachusetts a bill was presented upon petition of the chairman of the Board of Health of Boston, providing for a plan of State production of vaccine lymph under the charge of the State Board of Health. In opposition to this petition certain druggists were ably represented by counsel vigorously objecting to the proposed measure. No valid objections to the bill, however, were presented, but the Committee on Public Health, before whom the hearing was held, reported unfavorably upon it.

Meanwhile, new and important evidence having become public, the question was reopened upon motion of Mr. Adams of Melrose, and another hearing was held by the same committee, at which the State Board of Health was requested to appear, upon a resolve "authorizing and requesting the board to investigate and report a plan for the production and distribution of pure vaccine lymph for free use in this Commonwealth, said report to be made to the General Court as soon as possible."

At this hearing it was shown by an official of the United States government that a cow aged about eight or nine years had been slaughtered at an establishment in Somerville, bearing the comparatively fresh marks of having been used for vaccine production. This cow, after being slaughtered, was found to be so thoroughly diseased with tuberculosis as to render it necessary to condemn the carcass and convert it into fertilizers, being entirely unfit for food purposes. There was also pretty conclusive evidence to show that this animal had but a short time before been employed for the purpose of vaccine production at an establishment near Boston.

A representative of the largest vaccine establishment in New England who was present testified that it was not the custom of that establishment to slaughter the animals used for vaccine purposes before sending out the lymph for public use. And yet all of the best establishments outside of Massachusetts have recognized the importance of this measure, and in most of them this practice has become a requirement. Otherwise, what guarantee of protection have the public that the animals from which the vaccine material is obtained are in a healthy condition at the time of taking the lymph?

At the same hearing the counsel for the Druggists' Association introduced Drs. MacFarland and Huddleston, two experts from Philadelphia and New York, for the purpose of showing that there is no danger in the use of tuberculous cows for vaccine purposes, and that the purity of lymph may be very easily tested, irrespective of the conditions under which it is produced. The attorney for the druggists, however, did not elicit from Dr. MacFarland the fact that he (Dr. MacFarland) had, but a few days previous to his appearance at this hearing, published a list of cases of tetanus which had occurred among persons who had been vaccinated with lymph from establishments where far more careful measures are taken to ensure a pure product than have ever been taken at any of the establishments in Massachusetts. At such establishments outside the State young and healthy calves are employed for vaccine purposes, but in the State it would appear, from testimony which has been presented, that "any old cow" will answer the purpose.

Under present conditions it may reasonably be inquired what guarantee have the people that any protection can exist in the future as to the purity of the vaccine which is produced in Massachusetts?

#### WHAT SHALL WE DO WITH REPRINTS?

THE question periodically arises as to a proper disposition to make of the reprints of medical articles. Whether or not the reprint habit is growing, we have no definite means of ascertaining, but certain it is that no physician is long in practice without receiving a goodly number of the reprinted papers of his colleagues. Individuals undoubtedly differ in the use to which they put them. Many are at once destroyed, many are carefully filed away for future reference, some no doubt go to libraries, and all serve the purpose of bringing the writer more or less temporarily to attention. We are glad to welcome any proposition which will put the reprint, often a docu-

ment of great value, to a practical and legitimate use.

Dr. J. Madison Taylor has recently suggested a specific use to which such reprints may be put. He advises, in the first place, that a greater uniformity in the size of the sheet would be extremely desirable for ease in filing. It is hardly necessary to say in this connection that such a provision is next to impossible on account of the widely varying sizes of the pages of the original publications from which the reprints are taken. What is of more possible application is the suggestion that authors should select a certain number of libraries, both local and general, and always send a copy, preferably in duplicate, of every paper they may write to each, so that they may be filed both under the heading of author and subject. By these means, he rightly maintains, all the contributions of the author may be at once found grouped together, which would in many instances prove a decided convenience to the student. He makes also another hint, namely, that a copy of a reprint should always be placed on file at the hospital from which clinical material has been obtained, urging that this would be a great convenience to students searching through the notes, who would thereby in a measure be saved the annoyance of doing work already done by another. It would also prove of value in determining by whom and in what way certain clinical cases had been used. Notes of hospital records, so far as they are common property, should also be marked in some way, to prevent duplicate use.

Dr. Taylor's suggestions are certainly good and should be generally acted upon. However difficult or inconvenient it may be for an individual to collect and properly tabulate reprints for his own use, it is certainly possible in the modern and well-equipped hospital that such work could be done, to the manifest advantage of the profession at large. Reprints should be sent to libraries, particularly medical libraries, far more generally than is ordinarily done. While we are on this subject, we would like to insist upon the propriety of always indicating on the cover, or in some other part of a reprinted article, both the volume and the page of the original publication from which the article is taken. It is a common custom of the weekly medical journals to send out reprints merely with the date of the original publication. This, manifestly, is a source, often, of very great annoyance to the bibliographer, who, in spite of the fact that he may have in his possession an accurate reprint of an article, is still unable to catalogue it by volume and page. It is a simple matter, and one which should be universally adopted, to print the volume and the

pages, in addition to the date, on all reprints. Repaging the reprints should also be avoided when possible. Naturally, in the large page of the weekly journal, repaging is necessary. We sometimes question whether reprints are as valuable as their authors are apt to think, but, however this may be, we are convinced that they may be put to far better use than is usually their fate.

#### DENTISTRY AS A CHARITY.

It is reported that the Associated Charities of Boston have recently been considering a new department of service to the poor. Recognizing the fact that very much is done for the poor of the city in the way of medical attendance and dispensary facilities for the slightly ill, and actual hospital care for those more seriously incapacitated, it has seemed to those interested in the matter that some such public service should also be rendered to the poor in regard to the care of their teeth. As our knowledge grows, it is certainly more apparent that a goodly number of the ills from which people suffer is more or less directly attributable to the condition of the teeth. It is also certain that among the poorer classes no part of the body is so absolutely neglected as the mouth. The result from a practical and an esthetic point of view is sufficiently lamentable. It is said that there is no place in the country where teeth may be properly treated free of charge, excepting at certain dental schools.

Before entering upon any new phase of charity, it is desirable to consider whither it is all leading. The vital questions connected with public medical charities and their abuse have long been before the public eye. While we are indisposed to increase unduly this type of relief for the poor, we must clearly recognize its necessity under certain restrictions. From this point of view we are inclined to be in favor of a movement which will render possible a better care of the teeth among the very poor. This is particularly desirable inasmuch as the proper treatment of the teeth is under ordinary circumstances not obtainable at slight cost. Poor treatment of the teeth is probably worse than none at all, and it is unfair that the poor should be absolutely prohibited from the comfort and improved health which a proper condition of the teeth permits. It is, however, not to be forgotten that work done at dental schools under the jurisdiction of instructors is oftentimes of a high quality of excellence and fills a certain need in the community which this further extension of free treatment would simply enhance. We hope that something more than discussion may come of the proposed plan.

#### THE CONTROL OF SMALLPOX IN CHICAGO.

WE have already alluded to the admirable work done by the Chicago Health Department in relation to smallpox. Certain figures are now at hand which are of very great interest as showing what may be done by a vigorous propaganda of vaccination. Last February the attempt was made to control the disease over an area of about six hundred thousand square miles, including a population of twenty-five millions, in the territory immediately tributary to Chicago. The figures cover a period of seventeen weeks. On Jan. 31, when a preliminary conference of railway managers and physicians was held, it was demonstrated that in the thirty days following Dec. 28, 1901, there had been an increase, as compared with the same period of the previous year, of more than 900% in the number of smallpox cases reported in ten states of which Illinois is the southern centre. Between Jan. 31 and April 25 of this year it appears that a total of 10,598 cases were reported in the Chicago territory as contrasted with 10,464 during the corresponding period a year ago, being an increase of a little more than 1¼% during the thirteen weeks as against 911% increase of the first four weeks. The reason for this extraordinary showing apparently lies simply in the intelligent and vigorous work done by the Board of Health and also entered into with great willingness by the railways in and about Chicago. It will be remembered that the Chicago Board of Health during the prevalence of smallpox in that city and the surrounding country published a so-called vaccination creed setting forth in clear and forcible language what constituted a true vaccination and under what conditions a person might regard himself as immune. This creed was widely circulated, and unquestionably to it, as well as to the co-operation of all concerned, is to be attributed the very remarkable control over the disease which the foregoing figures seem to demonstrate. Certainly the Chicago Board of Health is to be congratulated upon the outcome of what for a time promised to be a very serious situation.

#### MEDICAL NOTES.

RESIGNATION OF DR. ABRAHAM JACOBI.—It is reported that Dr. Abraham Jacobi, after a service of thirty-two years in the College of Physicians and Surgeons, New York, as professor of diseases of children, has tendered his resignation. Dr. Jacobi became lecturer on infantile pathology in the College of Physicians and Surgeons in 1857, and in 1860 the first chair upon diseases of children established in America was instituted in the



New York Medical College, with Dr. Jacobi as professor. In 1865 he was professor of diseases of children in the University of New York, but resigned to become clinical professor of diseases of children in the College of Physicians and Surgeons. In 1895 he received an offer of the clinical professorship in the University of Berlin, Germany, which he declined to accept.

**TWO CENTENARIANS.**—The death of James Ross at St. Martins, N. B., is announced at the reputed age of one hundred and eleven years. Patrick Hearnay of Portland, Maine, is also reported to have died at the age of one hundred and six years.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, May 14, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 29, scarlatina 19, measles 158, typhoid fever 12, smallpox 38.

**BOSTON DEATH-RATE.**—The number of deaths reported to the Board of Health for the week ending May 10 was 206 against 238 the corresponding week last year, showing a decrease of 32 deaths and making the death-rate for the week 18.7.

**PETER BENT BRIGHAM HOSPITAL CORPORATION.**—Under this title a corporation has been formed for a hospital under the provision of the will of Peter B. Brigham, who died about twenty-five years ago. Organization has been effected with the following incorporators: Alexander Cochrane, Eben S. Draper, Henry S. Howe, Walter Hunnewell, William Ropes Trask, Edmund D. Codman and L. H. H. Johnson. In the organization Mr. Cochrane was chosen president, Mr. Codman treasurer and Mr. Johnson secretary. The amount available for hospital construction will probably be about \$4,000,000.

**AWARD OF BOYLSTON MEDICAL PRIZE.**—The Boylston Medical Prize of Harvard University for this year has been awarded to Robert L. Randolph, M.D., associate professor of ophthalmology and otology in the Johns Hopkins University, for an essay on "The Rôle of the Toxins in Inflammations of the Eye."

**OPENING OF NEW WARD AT FREE HOSPITAL FOR WOMEN.**—A new surgical ward has recently been opened in connection with the Free Hospital for Women at Brookline. The ward is finished with the greatest regard for modern aseptic ideas, and is intended to accommodate twelve patients.

**CHAIRMAN OF BOARD OF INSANE HOSPITAL TRUSTEES.**—Dr. Philip Coombs Knapp has been elected chairman of the Board of Insane Hospital

Trustees. Dr. Knapp has for several years been secretary of the board of which he now becomes chairman.

**APPOINTMENT OF JOHN T. BOWEN, M.D.**—Dr. John Templeton Bowen has been appointed assistant professor of dermatology in the Harvard University Medical School, succeeding Professor James C. White, who has recently resigned.

**DEFEAT OF OSTEOPATHY BILL.**—A bill before the Massachusetts Legislature, to permit the Boston Institute of Osteopathy to grant the degree of doctor of osteopathy, has been defeated.

#### NEW YORK.

**HOME FOR AGED AND INFIRM HEBREWS.**—The annual meeting of the Home for Aged and Infirm Hebrews, in West 106th Street, was held on May 4. The report of the attending physician, Dr. S. N. Leo, presented on that occasion, is of considerable interest in regard to the inmates of such institutions. In the course of it he said: "The class of applicants who have of late presented themselves for admission were, with few exceptions, in the very worst state of health. Peculiar malformations and deformities, the result of chronic diseases and of accidents, were common. Our record of longevity has been reduced slightly, owing to the extra-hazardous condition of life presented by inmates accepted of late years. One of our oldest male inmates passed away, aged 102 years, after having been with us 26 years. Others whose demise I note were with us respectively 30 years and 23 years. In the effort to safeguard and provide for those intrusted to our care according to the most approved modern tenets, no means have been spared or left untried. During the past year there have been 26 deaths, the average age at death being 76 years."

**THE GRAVE OF DR. PHILIP TURNER.**—It has been recently discovered that a small and inconspicuous tombstone in a corner of the old graveyard of St. Paul's chapel on Broadway is that of the distinguished Dr. Philip Turner, who was the first surgeon in America to ligate the femoral artery. Born in Norwich, Conn., in 1740, he served as an assistant surgeon under Lord Amherst in the campaign culminating in the capture of Fort Ticonderoga. In the Revolution he served in the Continental Army, was at the siege of Boston, and shared in Washington's campaigns in New York, New Jersey and Pennsylvania. He was made surgeon-general of the Eastern Department, and was specially commended for his skill and ability by General Jedediah Huntington, to whose division he was attached. After the war he removed to New York and took charge of the

Government Hospital. He died in 1815, at the age of seventy-five. His Norwich home, where he had his office, bore a quaint relic of ancient customs, a curious sign on which was painted the Good Samaritan aiding the injured man, while the priest and Levite pass by with averted eyes.

**MEMORIAL TO DR. A. J. C. SKENE.**—As a memorial of her husband, the widow of the late Dr. Alexander J. C. Skene has presented to Miss Mary Fisher the building on President Street, Brooklyn, erected by Dr. Skene for a private hospital and valued at \$100,000, to be used as a Mary Fisher Home for the aged in Brooklyn. Three other of these homes, which are designed for persons of education and refinement, have already been established, one in Manhattan, one in the borough of the Bronx, and one at Tenafly, N. J. Mrs. Skene will also endow one room in the Brooklyn home for the use of a needy retired physician.


**CIRRHOSIS OF LIVER FROM GUNSHOT WOUND.**—A case of unusual interest was presented in Col. Etienne St. George, formerly of the British Army, who died at his residence in New York on May 1. While serving with the First Bengal Fusiliers in India, during the mutiny of 1857, he received a gunshot wound of the liver and the bullet was never extracted. Although his suffering from the effects of the shot was partially alleviated, he became permanently invalided, but lived to the age of nearly seventy-five. The ball is said to have produced cirrhosis of the liver, and from this disease he finally died.

**HEBREW BENEVOLENT AND ORPHAN ASYLUM.**—The annual meeting of the Hebrew Benevolent and Orphan Asylum, at 188th Street and Amsterdam Avenue, which cares for nearly a thousand children, was held on April 27. In his report the president stated that the new Emergency Hospital, subscribed for by patrons and members of the society, had been completed, and that during the past three months, when a number of the inmates had been attacked with scarlet fever and other infectious diseases, the necessity for such an isolated building had been demonstrated to the fullest extent.

**LINCOLN HOME AND HOSPITAL.**—On May 3 a bronze tablet was unveiled at the Colored Home and Hospital in the Bronx, in memory of the late Alfred Van Santwood, who was one of the founders and principal benefactors of the institution. An accident ward and ambulance service have just been added, and the name has been changed to the Lincoln Home and Hospital. At the close of the memorial services it was announced that a gift of \$10,000 had been received from the Sweetzer estate.

## METEOROLOGICAL RECORD

For the week ending May 3, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'ath'r *		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.			
S...27	29.75	54	61	47	39	58	48	S W	W	24	15	C.	F.	
M...28	30.12	58	71	46	50	43	46	W	S	12	3	C.	C.	
T...29	30.24	64	75	53	43	50	46	N	S	3	12	C.	F.	
W...30	30.07	54	58	50	97	91	94	W	S	20	3	R.	O.	.75
T...1	30.00	57	64	50	70	65	68	W	N	13	15	O.	F.	.27
F...2	30.12	58	69	48	56	59	58	N	S	12	12	C.	O.	
S...3	30.13	48	50	46	96	83	90	S E	N E	4	10	R.	C.	T.
	30.06		64	49			64							1.02

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 3, 1902.

CITIES.	Population Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Cerebro spinal meningitis.	
New York...	3,665,352	1,359	481	24.85	14.86	3.45	.73	.29	
Chicago...	1,852,828	504	122	17.05	18.94	1.13			
Philadelphia...	1,349,624	459	124	21.02	16.35	.87	3.05		
St. Louis...	603,717								
Baltimore...	525,330	190	44	20.85	12.10	.52	1.57	.52	
Cleveland...	411,826								
Ruffalo...	375,742								
Pittsburg...	341,401	142	46	26.75	21.82	3.52	9.05		
Cincinnati...	332,082								
Milwaukee...	304,975								
Washington...	289,637								
Providence...	185,670	60	14	16.65	18.33	1.63			
Boston...	588,730	225	70	24.00	12.89	3.00	.44	.44	
Worcester...	127,337	30	11	12.33	13.33				
Fall River...	111,472	37	16	24.30	21.60	.27	.27		
Lowell...	99,074	42		19.05	14.28	9.52			
Cambridge...	96,334	24	7	25.00	16.67	12.50			
Lynn...	71,144	21	7	14.28	14.28			4.76	
Lawrence...	67,375	24	7	25.00	12.50	4.16			
Springfield...	66,454	12	5		16.67				
Somerville...	65,482	13	3	30.80	46.20			7.70	
New Bedford...	65,074	35	10	17.14	17.14	2.85	2.85		
Holyoke...	48,065	13	4	30.80					
Brookton...	43,208	10	1	30.00					
Haverhill...	40,392	9		22.22	11.11				
Salem...	36,567	5	2						
Newton...	36,336	9	1		22.22				
Malden...	35,390	12	4	16.67	16.67	8.33			
Chelsea...	35,264	15	3	6.67					
Fitchburg...	33,348	10	1	30.00	10.00				
Taunton...	32,759	12	2	8.33	16.67				
Everett...	27,114	7	2						
North Adams...	26,583	10	4	10.00	10.00			10.00	
Gloucester...	26,121	5			20.00				
Quincy...	25,307	3		33.33	33.33				
Waltham...	24,512	2							
Pittsfield...	22,311	3	3		100.				
Brookline...	21,679	5		40.00					
Chicopee...	20,390	9	3	33.33	17.11	11.11			
Medford...	20,014	5	2		20.00				
Newburyport...	14,478	7	1	28.60	14.30	28.60			
Melrose...	13,384	3		33.33	33.33				
Westfield...	13,038	4	1	25.00	25.00				
Attleboro...	12,846								
Adams...	12,813								
Milford...	12,516								
Frammingham...	12,109	1							
Peabody...	11,967								
Revere...	11,894								
Gardner...	11,544	2	2	100.				50.00	
Weymouth...	11,337	4	2	25.00					
Southbridge...	10,838	5	3	40.00	20.00			20.00	
Watertown...	10,600	4	2		25.00				
Plymouth...	10,336								

Deaths reported 3,379; under five years of age, 1,015; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption); 744, acute lung diseases 538, consumption 343, scarlet fever 63, erysipelas 15, typhoid fever 43, whooping cough 34, cerebrospinal meningitis 11, smallpox 20, measles 32, diarrheal diseases 85.

From whooping cough, New York 18, Chicago 4, Philadelphia 7, Baltimore 3, Pittsburg 1, Boston 1. From measles, New York 22, Chicago 2, Pittsburg 4, Boston 4. From erysipelas, New York 3, Chicago 4, Philadelphia 2, Baltimore 1, Pittsburg 1, Providence 1, Boston 3. From smallpox New York 14, Philadelphia 1, Boston 4, Brookline 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending April 19, the death-rate was 18.3. Deaths reported 5,224; acute diseases of the respiratory organs (London) 316, whooping cough 144, diphtheria 63, measles 150, smallpox 72, scarlet fever 36.

The death-rate ranged from 6.2 in Hornsey to 27.6 in Burnley; London 18.1, West Ham 19.9, Croydon 14.4, Brighton 17.2, Portsmouth 19.5, Southampton 15.0, Bristol 17.6, Birmingham 19.5, Leicester 15.4, Nottingham 19.5, Birkenhead 16.2, Liverpool 23.7, Manchester 22.0, Salford 20.0, Bradford 15.7, Leeds 18.1, Sheffield 19.2, Hull 17.2, Newcastle-on-Tyne 22.9, Cardiff 16.4.

#### OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MAY 1, 1902.

BAILHACHE, PRESTON H., surgeon. Detailed to represent the service at American Congress of Tuberculosis at New York, N. Y., May 14, 15 and 16. April 30, 1902.

AUSTIN, H. W., surgeon. Granted leave of absence for seven days from April 23, 1902, under paragraph 179 of the regulations.

BANKS, C. E., surgeon. Granted leave of absence for two days from May 2. May 1, 1902.

CARRINGTON, P. M., surgeon. Detailed to represent the service at American Congress of Tuberculosis at New York, N. Y., May 14, 15 and 16, reporting at Washington, D. C., en route to New York and on return to Fort Stanton. April 30, 1902.

GEDDINGS, H. D., passed assistant surgeon. Detailed as supervisor of repairs and alterations of the steamer "Neptune" at Baltimore, Md. April 29, 1902.

PERRY, J. C., passed assistant surgeon. Relieved from duty as chief quarantine officer of the Philippine Islands, and directed to proceed to San Francisco, Cal., and await orders. April 25, 1902.

THOMAS, A. R., passed assistant surgeon. Relieved from duty in office of U. S. consul-general at London, Eng., and directed to proceed to Manila, and assume the duties of chief quarantine officer of the Philippine Islands, relieving Passed Assistant Surgeon J. C. Perry. April 25, 1902.

CUMMING, H. S., passed assistant surgeon. Detailed as inspector of unserviceable property at office of plague commission at San Francisco, Cal. April 30, 1902.

McMULLEN, JOHN, assistant surgeon. Relieved from duty at Baltimore, and directed to proceed to Boston, Mass., and report to medical officer in command for duty and assignment to quarters, relieving Assistant Surgeon M. W. Glover. April 30, 1902.

GRUBBS, S. B., assistant surgeon. Bureau letter of April 18, 1902, directing Assistant Surgeon Grubbs to assume command of the Gulf quarantine station, amended so that he shall visit New Orleans, La.; Pascagoula, Miss.; and Mobile, Ala., en route. April 28, 1902.

PARKER, H. B., assistant surgeon. Relieved from duty in the Hygienic Laboratory, and appointed chairman of board of medical officers for the investigation of yellow fever, malarial fevers and dengue, at Vera Cruz, Mex. April 25, 1902.

ANDERSON, J. F., assistant surgeon. To proceed to Norfolk, Va., for special temporary duty. April 30, 1902.

HEISER, V. G., assistant surgeon. To proceed to Quebec, Can., for duty in the office of the U. S. commissioner of immigration. April 28, 1902.

BILLINGS, W. C., assistant surgeon. Granted leave of absence for two months from May 1. April 26, 1902.

GOLDBERGER, J., assistant surgeon. To report at Washington, D. C., for special temporary duty. April 25, 1902. Bureau letter of April 18, 1902, directing Assistant Surgeon Goldberger to proceed to Tampico, Mex., amended so that he shall visit Norfolk, Va.; New York, N. Y.; Havana, Cuba and Vera Cruz, Mexico, en route. April 26, 1902.

McLAUGHLIN, A. J., assistant surgeon. Upon being relieved from duty at the immigration depot by Assistant Surgeon M. W. Glover, to proceed to Washington, D. C., and report to the director of the Hygienic Laboratory for duty. April 30, 1902.

GLOVER, M. W., assistant surgeon. Upon being relieved from duty at Boston, Mass., by Assistant Surgeon John McMullen, to proceed to New York, N. Y., and report to Surgeon G. W. Stoner, immigration depot, for duty, relieving Assistant Surgeon A. J. McLaughlin. April 30, 1902.

BURKHALTER, J. T., assistant surgeon. To proceed to Scranton, Miss., for special temporary duty. April 25, 1902.

BEAN, L. C., acting assistant surgeon. Granted leave of absence for three days from April 30. April 29, 1902.

BURFORD, R. E. L., acting assistant surgeon. Granted leave of absence for thirty days from May 15. April 23, 1902.

KINSELL, B., acting assistant surgeon. Granted leave of absence for seven days from May 12. April 26, 1902.

WETMORE, W. O., acting assistant surgeon. Granted leave of absence for seven days from April 19, 1902, under paragraph 201 of the regulations.

#### PROMOTION.

Junior Hospital Steward F. L. Gibson promoted to the grade of senior hospital steward from June 11, 1901. April 24, 1902.

#### BOARDS CONVENED.

Board convened to meet at Washington, D. C., April 28, 1902, for the physical examination of candidate for the position of second assistant engineer R.C.S. Detail for the Board: Surgeon R. M. Woodward, chairman; Assistant Surgeon B. S. Warren, recorder.

#### CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MAY 3, 1902.

R. M. YOUNG, assistant surgeon. Detached from the Cavite Naval Station and ordered to duty at Guam, L. I.

W. K. DUBOSE, surgeon. Detached from the "Wisconsin" and ordered to the "Solace."

C. F. STOKES, surgeon. Detached from the "Solace" and ordered to the "Wisconsin," and on arrival of that vessel at the Puget Sound Navy Yard, ordered to the "Oregon."

#### SOCIETY NOTICES.

ASSOCIATION OF MILITARY SURGEONS.—The Association of Military Surgeons of the United States will hold its eleventh annual meeting in Washington, D. C. June 5, 6 and 7, 1902.

MEDICAL ASSOCIATION OF MISSOURI.—The Medical Association of Missouri will hold its forty-fifth annual meeting at St. Joseph, May 20, 21 and 22, 1902.

AMERICAN LARYNGOLOGICAL SOCIETY.—The twenty-fourth annual congress of the American Laryngological Association will be held at Boston, Mass., May 24, 27 and 28, 1902. The sessions will be held in the Boston Medical Library Building and the Harvard Medical School.

THE MASSACHUSETTS MEDICAL SOCIETY.—The one hundred and twenty-first annual meeting of the Massachusetts Medical Society will be held at 9.30 A.M., Wednesday, June 11, 1902, in the Building of the Massachusetts Charitable Mechanic Association on Huntington Avenue, Boston.

Meetings of sections will be held in the Medical Library, 8 The Fenway, on the preceding day, Tuesday, June 10.

#### BOOKS AND PAMPHLETS RECEIVED.

A Case Illustrating Plastic Surgery of the Eyelids. By Cassius D. Wescott, M.D., Chicago. Illustrated. Reprint. 1902.

Optic Neuritis in the Young, with Report of Five Cases. By William Cheatham, M.D., Louisville, Ky. Reprint. 1902.

Detroit College of Medicine. Announcement for Session of 1902-1903. Illustrated. Published by the Board of Trustees. 1902.

Selected Essays and Addresses. By Sir James Paget. Edited by Stephen Paget, F.R.C.S. New York: Longmans, Green & Co. 1902.

The Surgery of the Rectum. By Charles B. Kelsey, A.M., M.D. Sixth edition. Illustrated. New York: William Wood & Co. 1902.

## Original Articles.

AN ABSTRACT OF SOME OF THE PREVAILING OPINIONS ON THE PERIODS OF INCUBATION, OBSERVATION AND ISOLATION OF SOME OF THE INFECTIOUS DISEASES.<sup>1</sup>

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

## TYPHOID FEVER.

*Incubation.*—Murchison concludes as follows:

(1) The period of incubation of typhoid fever is most commonly above two weeks; (2) instances of a longer duration are more common than in typhus or relapsing fever; (3) it is often less than two weeks, and may not exceed one or two days.

Leibermeister considers the average period of incubation as three weeks.

Professor Quincke<sup>2</sup> says, in a series of accurately observed cases, the shortest period was eight days, the longest certain period between 16 and 18 days.

In the Marylebone milk epidemic of 1873 a child was taken ill five days after drinking the infected milk (Cayley).

Hilton Fagge says that it has been conjectured that incubation is shorter when the poison is inhaled with the breath, longer when it is swallowed in drinking water. During this latent period the patient may feel quite well, or, on the other hand, may complain of being out of sorts. There may be languor or tendency to diarrhea, and vague feelings of discomfort and chilliness, with headache and anorexia.

Wilson<sup>3</sup> says this period is variable. In general, it may be set down as from two to three weeks. In some well-authenticated cases it has not exceeded four or five days. He mentions a case of only four days' incubation.

Williams<sup>4</sup> says the determination of the incubation period of typhoid fever has always presented much difficulty, owing to the paucity of cases affording evidence on the point and the difficulty of settling exactly the date at which an attack begins. During the period of incubation the patient is apt to suffer from various ill-defined symptoms, and this condition merges gradually into a developed attack. In other cases, however, the onset of the disease is sudden; and the Report of the Clinical Society, based on analyses of reports of outbreaks down to 1890, has provided a considerable mass of information which is found to confirm the opinions of the best authorities published previously to that date. Their conclusion is: "The interval between exposure to infection and the development of distinct symptoms

is probably most often 12 to 14 days. It is not very infrequently 9 or 10 days, occasionally 8, and possibly less. In rare cases it is prolonged to 15, 18 or even 23 days." There is some reason to believe that, when the "dose" of the infection is large, the incubation is short.

Brannan<sup>5</sup> says the usual duration of incubation period is from 8 to 14 days. In rare instances it may not exceed one or two days. Still more rarely, it may extend three or even four weeks.

Ballard (Report of Committee appointed by Clinical Society of London, 1892, to investigate periods of incubation and contagion of certain contagious diseases) found in one typhoid epidemic 43 cases infected from milk. Of these, 19 used the milk freely as an article of diet, and all but four of them applied for medical aid within the first fortnight of the outbreak. Twenty-four of the persons attacked used very little milk; and 17 of these sought medical aid in the third and fourth week of the outbreak, three only in the first, and five in the second week. Power (same report) reports a case where typhoid followed a single draught of infected milk in three weeks, whereas large milk drinkers in the same outbreak suffered early.

Chantemesse asserts, on the authority of Dawson Williams, that certain individuals retain for a long time in their intestines, or perhaps even in the substance of their tissues, typhoid germs, which develop ill until the occurrence of some favoring circumstance. A similar retention of the infective agent in a condition of quiescence for long periods is not very infrequent in diphtheria, pneumonia, and suppurative diseases, until some general deterioration of health or of the local power of resistance enables it to become established, grow, and produce characteristic effect.<sup>6</sup>

With regard to the period of *observation* in the majority of instances, in epidemics at least, the infection is derived indirectly from the patient through the medium of water or milk. Experience shows that an epidemic due to contamination of milk with the typhoid bacillus will come to an end at or about the end of the second week after the supply of the infected milk for consumption has been stopped. When water is the distributing medium, a much longer time may elapse before the cases cease to appear. Thus, when a public water supply has been contaminated, cases have often continued to occur until the fourth week after the source of the specific pollution has been removed, and in cases of well water the length of time is apt to be very much greater, owing probably to the fouling of the soil and the difficulty of insuring thorough disinfection. The period of observation, therefore, is somewhat uncertain; and, if the water supply cannot be entirely changed, it should extend over a month at least.

A patient suffering from typhoid fever is capable of transmitting it to others throughout the entire course of his illness, from the date of the

<sup>1</sup> The accompanying abstract was prepared for the committee of the Boston Society of Medical Improvement appointed to consider the "Periods of Incubation, Observation and Isolation of certain of the Infectious Diseases," and forms the basis of their report to the society. The report was read at the meeting of the society on Jan. 20, 1902, and was accepted. The committee consisted of S. H. Durgin, M.D., Chairman; J. H. McCollom, M.D., E. G. Cutler, M.D., J. L. Morse, M.D., and R. C. Cabot, M.D.

<sup>2</sup> Correspondenz-Blatt f. schweizer Aerzte, 1875, No. 8.

<sup>3</sup> American System of Practical Medicine, Loomis, 1897, 1, 179.

<sup>4</sup> Twentieth Century Practice of Medicine, xlii, 381.

<sup>5</sup> Twentieth Century Practice of Medicine, xvi, 615.

<sup>6</sup> Washbourn: Proceedings of the Royal Medical and Chirurgical Society, London, meeting of Nov. 26, 1895.

earliest symptoms down to the end of the second week of convalescence at least; and his capability returns during a relapse. Infection can be conveyed by fomites, and retained by them for two months at least. Washerwomen have frequently been infected by washing the linen of patients, the nature of whose illness had not been recognized at first, so that no disinfection had been practised. Richardson<sup>7</sup> found typhoid bacilli in the urine of a number of cases of typhoid. They were apt to appear in the later stages of the disease, and also persisted in the great majority of cases far into convalescence.

#### MUMPS.

*Incubation.*—The period of incubation of mumps is a somewhat variable one, and different estimates of its length are given. In general, it would seem to vary from one to three weeks, with an average of about two weeks.<sup>8</sup>

An incubation period of six weeks has been reported (Nicholson), and as short as three or four days (Leitzen). There are, as a rule, no symptoms during this time.

Eustace Smith<sup>9</sup> gives the report of the Clinical Society<sup>10</sup> in which mumps incubation was said to vary from 14 to 25 days. When the complaint begins it is infectious from the very first, and can be communicated while the patient is merely ailing and before any signs of glandular swelling are to be detected. Its duration is ten days to a fortnight, but the patient must be considered unsafe to others for at least a week longer.

Kauders<sup>11</sup> gives the incubation stage as from 9 to 25 days. The contagion is usually over at the end of three weeks.

Williams<sup>12</sup> says the incubation period in epidemic parotitis is long, the usual period being 21 days, but periods of 19, 18 and 17 days are frequent. There is some evidence that the period tends to be shorter when the person infected has been exposed to infection continuously, or at least for several days at the commencement of the illness of the infector. The shortest period is probably 14 days, though some writers have believed that it might be only 8 days (Biedert, Demme). The longest period known is 25 days.

*Observation.*—The period of observation mentioned by the "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" is 24 days, but it probably would be safer to extend this to 25 days.

Mumps is very infectious at the earlier stage, and during the prodromal symptoms, if they occur. The prodromal stage, before the parotids begin to swell, should be taken to last four days, although it is not often so long. The risk of infection diminishes progressively from the onset of parotitis, and, as a rule, has ceased in three

weeks from the beginning, probably in most cases in a fortnight, if all swelling of the parotids and all other glands have subsided.

*Isolation.*—The "Code of Rules" for the Prevention of Contagious and Infectious Diseases in Schools" directs isolation for four weeks, when the patient may mix with others, if all swelling have subsided.

It should be borne in mind: (1) That mumps is infectious in the prodromal stage; and persons who have been in contact with the patient during this stage, which must be assumed to comprise the four days before the onset of the swelling, even though no illness have been complained of, must be regarded as possibly infected, and kept under observation. By isolating persons first seen 10 days after exposure to infection, it may thus still be possible to limit the spread of the infection by such persons, even if they subsequently develop the disease themselves. (2) Since the incubation period is most likely 19 to 21 days, and is sometimes 24 or 25 days, it is well worth while to isolate a person who has been exposed to infection a fortnight or even three weeks earlier. (3) Isolation of mumps is easy, since the infection does not appear to be readily carried far from the body of the infected individual. Confinement of the patient to his own room is commonly effective in preventing spread through a household, if other children are excluded from all communication.

#### SCARLET FEVER.

*Incubation.*—This period is very short, probably never extending beyond a week, and rarely lasting so long. It may be only 24 hours, but, on an average, it varies from three to five days. In 1861 Trousseau declared that neither in measles nor in scarlet fever could "the duration of the latent period be rigorously determined in the present stage of our knowledge." While, still later, Obermeier gave it as his opinion that the incubation period of scarlatina was unknown.

Murchison<sup>13</sup> collected 75 cases of scarlet fever, having any bearing on the question, which had either come under his own observation or been communicated to him in the 20 years ending 1878. Of the total 75 cases in not one did the incubation period exceed six days. In 73 cases it could not have exceeded five days. In 54 cases it could not have exceeded four days. In 20 cases it could not have exceeded three days. In 15 cases it could not have exceeded two days. In three cases it could not have exceeded twenty-four hours. It also appears that the longest period of incubation made out in any of the cases was four and one-half days, and that in only two of the cases was it certain that it was as long as four days. Murchison's conclusions are as follows: (1) The duration of the incubation stage may be only a few hours; (2) probably in a

<sup>7</sup> Bacteriological Studies upon the Urines of Persons Sick with Typhoid Fever. Mark W. Richardson, Massachusetts General Hospital, 1898.

<sup>8</sup> Griffith: American System of Practical Medicine, Loomis 1897, i, 728.

<sup>9</sup> Allbutt's System Practical Medicine, 1897, ii, 233.

<sup>10</sup> Supplement to vol. xxv, 1892.

<sup>11</sup> Diagnostisches Lexikon, 1894, p. 621.

<sup>12</sup> Twentieth Century Practice of Medicine, xiii, 379.

<sup>13</sup> Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools, issued by the Medical Officers of Schools Association, London, 1886.

<sup>14</sup> Observations on the Period of Incubation of Scarlet Fever and of Some Other Diseases. Clinical Society's Transactions, 1878, xi, 238.

large proportion of cases it does not exceed 48 hours; (3) it very rarely exceeds seven days; (4) consequently, a person who has been exposed to scarlet fever, and does not sicken after a week's quarantine, may be pronounced safe.

Moore gives the following: A gentleman, age 20, went from Dublin into the country Nov. 2, three weeks after the disappearance of the rash of scarlet fever. On his arrival, the same day, he saw two sisters, both of whom took to bed with scarlet fever Nov. 8, that is, in six days; incubation in five days.

A boy, age 8, sickened with scarlet fever on Jan. 12. His sister took ill on the 17th, and five days later another sister sickened.

Two girls, cousins, slept in the same bed on April 5 and 6. One of them complained of sore throat in the night of April 5, and showed the rash of scarlatina on the morning of the 7th. The other sickened on April 10, that is, on the fourth day.

Of two sisters, one took ill on Dec. 27, 1871, and was at once isolated. The other remained under the same roof, but without seeing her sister until they met by accident on Feb. 4, 1872. She sickened with scarlet fever seven days later, on Feb. 11.

Caiger<sup>15</sup> says: In the large proportion of cases between a single definite exposure and the first appearance of the febrile symptoms, it has been either two, three or four days. In some well-authenticated cases it has been less than forty-eight hours, but not much less. On the other hand, it is sometimes as long as five days, and, in rare instances, even six. If the first case in a family was properly isolated and the necessary measures for disinfection scrupulously carried out, the safety of the other members is practically assured, if no second case has arisen before the end of a week.

Robinson<sup>16</sup> accepts the report of Williams for the Clinical Society of London,<sup>17</sup> who tabulates the opinions as follows:

	USUAL TIME. DAYS.	MINIMUM TIME. DAYS.	MAXIMUM TIME. DAYS.
Committee of the Clinical Society, 1892 . . .	2 or 3	1	7
Bristowe, 1887 . . . . .	6 to 8	Often less	Occasionally longer
Guizon, 1892 . . . . .	4 or 5	—	—
Strümpel, 1887 . . . . .	Less than 4	—	7

Hamilton,<sup>18</sup> from an experience of a severe epidemic among troops, claims that the period of incubation of scarlet fever is three or four days. In some inoculation experiments the time of incubation has been seven days. Bokai<sup>19</sup> reports two cases of tracheotomy in which scarlet fever developed sixteen hours after exposure. Soerensen<sup>20</sup> states that in 10 cases operated upon by

Paget, in which scarlet fever developed, the period of incubation was one day in 2 cases, two days in 3, and three days in 3 cases. He also says that in 9 out of 12 cases of puerperal scarlet fever the period was three days. It would seem probable from these figures that where infection occurs through a wound the time of incubation is shortened.

Unger<sup>21</sup> says the period of incubation may be less than twenty-four hours where it enters the body through a wound. In other cases it is two to four days, or four to seven days, but seldom more.

Crandall<sup>22</sup> says the extremes in authenticated cases varies from a few hours to fifteen days. In 84% of cases Holt found the period to be less than six days, and in 66% between two and four days.

Williams<sup>23</sup> says scarlet fever usually comes on during the second or third day after exposure.

Reimer believed that in more than two-thirds of the 3,624 cases which he collected the disease came on within the first three days after exposure.

The Clinical Society's Committee collected 28 cases of disease following exposure for the usual time to a known source of infection. In 16 the earliest symptoms were observed before the end of the third day; in 10 before the end of the second day. In 2 the interval was seven days, and in 1 eight days. Including other cases observed with precision, there were 106 cases, in which 52, or nearly one-half, began before the end of the third day after exposure, while 47 began on the second or third day. Eight days must be taken to be the extreme limit of the period of incubation.

**Observation.**—The period of observation given in the "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" is 14 days; but 10 days would probably be sufficient if care were taken to make certain that the person was free from all fever and sore throat, and if the fomites which have been in contact with the infection be disinfected.

**Isolation.**—Scarlet fever is infectious from the appearance of the earliest symptoms, and until desquamation has ceased and all signs of inflammation of the mucous membrane shall have passed away. Infection may be conveyed by the suppurating discharge of middle ear disease until a late period. The urine in consecutive albuminuria is also said to be infectious. The period of isolation should not be less than six weeks, and the patient should receive a series of baths and should not be liberated unless "desquamation have completely ceased, and there be no appearance of sore throat" (Code). Under exceptional circumstances, however, the individual may be actively infectious as long as eight weeks after the commencement of an attack, and it is not safe to lay down any absolute rules on which lay-

<sup>15</sup> Allbutt's System of Medicine, 1897, II, 132.

<sup>16</sup> American System of Practical Medicine, 1897, I, 534.

<sup>17</sup> Practitioner, July, 1894.

<sup>18</sup> British Medical Journal, June 3, 1894.

<sup>19</sup> Pester medicinisch-chirurgische Presse, v, 290.

<sup>20</sup> Internationaler klinische Rundschau, 1899, Nos. 6 and 7.

<sup>21</sup> Diagnostisches Lexikon, 1895.

<sup>22</sup> Cyclopaedia of Children's Diseases, Supplement, 1890, v, 257.

<sup>23</sup> Twentieth Century Practice of Medicine, xiii, 376.



men can be allowed to act on their own responsibility.

#### WHOOPIING COUGH.

*Incubation.*—During this period no symptoms of the disease present themselves. Statistics are at variance regarding its length, and the fact that the incubation takes place so insidiously makes the determination of the exact duration of the incubation difficult in most cases. It probably lasts from two to seven days, with an average of three to four days.<sup>24</sup>

Eustace Smith<sup>25</sup> says it probably varies in different individuals. In one very clear case, noted by Dr. Bristowe, the period was exactly a fortnight, but according to some writers it may be as short as four days. The infectiousness begins with the earliest symptoms. Indeed, it is in the early non-spasmodic stage that the child is most likely to be a source of danger to others; for, when the whoop appears, his power of communicating the disease begins to decline. Still, it is not at an end until a period of at least six weeks has elapsed from the beginning of the attack.

Williams<sup>26</sup> says the period of incubation is somewhat uncertain. The usual period between exposure and beginning of catarrhal symptoms is 7 to 10 days. The characteristic whoop appears seven days later, as a rule, so that the interval between exposure and whooping is usually about 14 days.

Sticker<sup>27</sup> says a period of incubation varying from two to five or eight days in length, without symptoms, precedes the actual disease.

*Observation.*—The "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" recommends the period of observation to be 21 days; but probably 15 days would be sufficient if the individual were examined carefully at the expiration of that period, and found to be free from all trace of catarrh of the fauces and pharynx and of all signs of bronchitis.

The infectiousness is marked in the earlier stage, and before the characteristic whoop begins. It declines rapidly after the acute stage has passed. On the authority of Williams, Weill, who in 1894 expressed the opinion that whooping cough was contagious only during the premonitory catarrhal stage, has since<sup>28</sup> put his opinion to the test. On various occasions he permitted nearly 100 young children, who had not previously suffered from whooping cough, to be associated in the same ward for 20 days or more with children suffering from the disease during the stage of whooping. In only one case was the disease contracted, and in this instance the patient from whom the infection was derived was in the very earliest period of the whooping stage. In three small epidemics he was able to satisfy himself that infection was contracted from children

who had not yet begun to whoop. Weill concludes that infection ceases very soon after the characteristic whoop commences, and that therefore in a family it is not the patient who is already whooping, but his brothers and sisters who have not begun to whoop, that ought to be isolated.

That the disease is highly contagious at the height of its course seems certain, but that the patient is dangerous as long as he coughs, as some writers affirm, is doubtful, though for the sake of prudence it is better to assume this.<sup>29</sup> According to Rosenstein, Schönlein and others, in different epidemics the contagiousness is very different (Sticker).

Although the greatest risk of contagion is during the catarrhal stage, and although the patient at the height of the convulsive stage is seldom dangerous, it may be taken as a rule that the person is to be avoided as long as he coughs (Sticker).

*Isolation.*—The "Code of Rules for Prevention of Infectious and Contagious Diseases in Schools" says that the patient should be kept isolated from susceptible persons for six weeks from the commencement of the whooping, and should then be allowed to mingle with others only if the whoop and all characteristic spasmodic cough have ceased. If all cough have completely passed away earlier, which is not often the case, this rule may be relaxed and the period of isolation shortened.

(To be continued.)

#### GUNSHOT WOUNDS OF THE KNEE-JOINT BY THE PROJECTILE OF REDUCED CALIBRE.

BY LOUIS A. LA GARDE, M.D.,  
Major and Surgeon, U. S. Army.

WITH the use of the old armament, wounds of the knee-joint constituted 3% of all wounds observed in military practice, and because of its exposed position and the extent of its synovial sac, it gave us 28% of all joint wounds that came under treatment in war hospitals. Gunshot wounds of this joint were then, as they may be today, divided into five classes, as follows: (1) Simple perforation of the synovial sac without accompanying lesions of any bone; (2) injury to the joint with lodged ball; (3) injury to the joint exhibiting guttering of the articular ends of the bones; (4) complete perforation of the bones traversing the joint in different directions; (5) implication of the joint by fissuring and comminution of the bones entering into its formation.

The treatment employed in the preantiseptic era was: (1) Amputation; (2) conservation; (3) excision. The first of these—amputation—was the rule, and the surgeon who failed to amputate in his duty to his patient. Conservation

<sup>24</sup> Griffith: American System of Medicine, 1897, I, 715.

<sup>25</sup> Allbutt's System of Medicine, II, 239.

<sup>26</sup> Twentieth Century Practice of Medicine, XIII, 378.

<sup>27</sup> Nothnagel's Encyclopedia of Practical Medicine, W. B. Saunders & Co., 1902, p. 550.

<sup>28</sup> Lyon Médicale, May 2, 1897.

<sup>29</sup> Sticker: Nothnagel's Encyclopedia of Practical Medicine, W. B. Saunders & Co., 1902, p. 550.

and excision were at times practised when patients refused amputation, but even in those cases in which the joint capsule alone was involved, the results of this plan of treatment were so disastrous that it was universally condemned.

When antisepsis came into vogue our first observations in military practice of the value of clean wound treatment, as it was then understood, was given to us by Reyher and von Bergmann in 1877 and 1878 during the Russo-Turkish War. Reyher reports eighteen primary aseptic cases of wounds of the knee, regardless of the extent of the joint involvement treated by antiseptic dressings, of whom three died, a mortality of 16.6%. The treatment was strictly conservative without excision or amputation. The cases ending in recovery are said to have had movable joints. He employed irrigation in severe cases, while the simple cases were cleansed externally and dressed with wet carbolic gauze. von Bergmann employed the same method of treatment with the following results: Out of fifteen gunshot wounds of the knee, one of which had suffered injury to the bony articulation, fourteen recovered, in two of whom amputation was required. The fatal case was one in which amputation was practised. Nothing is said of the amount of motion remaining in those who recovered. The majority of them more than likely got well, as did those of Reyher with movable joints. The cases so treated by Reyher and von Bergmann occurred before the change in the armament of the nations had taken place. They represent therefore the result of injuries by the old soft leaden bullet of 45 calibre, weighing approximately 480 gr., treated conservatively under antiseptic methods. Grouped together we find that the mortality was for the two sets of cases only 11.1%. Compared to the results of treatment of gunshot injuries by the old arm in the preantiseptic era the results of Reyher and von Bergmann were certainly a revelation. In looking over the statistics given us by Otis, we find that gunshot wounds of the knee in the Civil War under all methods of treatment then in vogue gave a mortality of 53.7%, which, compared to the results of Reyher and von Bergmann, places to the credit of antisepsis a total of 41.6 lives saved in every 100 men hit in the knee.

In late years changes have come about in the manufacture and composition of rifle bullets to enhance the satisfactory results already alluded to both as to life and limb. The character of gunshot wounds of bones especially is very much influenced by the density of the metals which inflict them. Longmore, among the older writers, ventured to explain thirty-five years ago what would be the special features of gunshot wounds as soon as it became practicable to use steel bullets. The evolution of the military rifle and the missile it propels today have given us a factor which in a humane sense stands next in importance to antisepsis.

For military and ballistic reasons which do not concern us in this instance, dating from 1886 to 1893, all the governments changed their armament

from rifles of larger calibre and lower velocities propelling leaden bullets easily deformed upon impact with resistant bone, for those of smaller calibre and higher velocities propelling steel-clad bullets that very seldom deform against the most resistant tissues. Following the example of the other governments, the United States adopted the Krag-Jorgensen rifle as its military hand weapon in 1893. Before doing so, however, the War Department caused to be instituted certain experiments with the bullet of the proposed weapon which I had the pleasure of conducting at Frankford Arsenal in 1892. The experiments consisted in firing into ten cadavers with simulated velocities for all the ranges from 100 up to 2,000 yards.

The results of these experiments and those of military surgeons in Germany and France engaged in similar work demonstrated marked differences between the destructive effects of the old and new arm, and these differences were specially noted after firing into tissues of varying resistance. As a broad principle it may be stated that the amount of destruction was invariably proportional to (1) the velocity, (2) the sectional area of the projectile, and (3) to the resistance which the ball encountered on impact.

In the soft parts, like the skin, muscle and lung, tissues offering a minimum amount of resistance, the area of destruction was limited to the channel wound, which as a rule only equaled the sectional area of the bullet. The more resistant tissues, like the diaphyses of the long bones and those anatomical parts containing a great deal of water, or soft parts enclosed in rigid walls, showed destructive effects which were proportional to the velocity and sectional area of the bullet. For instance, close shots with the two bullets were alike severe in the shafts of the long bones, the intestines loaded with fluid contents, the heart, head, etc. In the mid and remote ranges where we commence to see a marked falling off in the velocity of the two bullets, the amount of destruction accomplished by the reduced-calibre bullets was always less than that inflicted by the bullet of the old arm, due doubtless to the smaller frontage of the former.

The epiphyseal ends of the bones, compared to the compact substance, showed destructive effects in proportion to the sectional area of the projectile. In the close ranges the old leaden bullet showed marked destruction, not only because it was primarily greater in sectional area, but because its diameter was usually made greater still by deformation. On the other hand, the smaller calibre bullet showed a marked tendency to make clean-cut perforations in the spongy ends of the bones, due doubtless to its sectional area, which was primarily less, and which was never increased by deformation.

The humane features of the new bullet having been so thoroughly established upon the articulation by experimentation, the results of the actual conditions in war were naturally awaited with

the greatest interest concerning these results upon the knee.

Makin, in his "Surgical Experiences in South Africa," referring to joint wounds, states that, in spite of the fact that the knee was the most frequently wounded among the articulations, such injuries gave less anxiety and attained a more favorable result than is the case in civil practice. Limitation of movement was slight or absent in most cases, and he remembers of only one case—a man shot at 300 yards—in which serious ankylosis resulted. He never saw a case of lodged Mauser or Lee-Metford ball in a joint, a condition that bears so significantly on prognosis.

The staff of a Civilian War Hospital report that joint wounds gave no serious complications. The wounds healed without difficulty and gave rise to but little synovial effusion. In eight cases of wounds of the knee in which perforation of the patella occurred a perfectly movable joint resulted, although in some there were complications from wounded vessels and nerves.

Sixty-two cases of gunshot injury were reported to the Surgeon-General's office since July, 1898, from various missiles, as follows: Thirty-calibre Mauser, 17; 45-calibre brass-jacketed Remington, 8; 30-calibre Krag-Jorgensen, 2; character of missiles not stated, 27; revolver bullet, calibre not stated, 3; small shot, 1; shrapnel, 3; shell fragment, 1.

We find that five died, making a mortality of 8%. Two of the deaths resulted after amputation. Of the 57 who recovered 45.6 were restored to duty. If we compare these 62 cases with the group of 33 cases given us by Reyher and von Bergmann, we find that our mortality was only 3% less than theirs. This is doubtless due in part to the large number of cases by the reduced-calibre weapon in our group of 62 cases. We may admit, for the sake of comparison, that gunshot wounds of the knee under our present system of wound treatment in war gives us a mortality of 8 to 11% irrespective of the character of the missiles concerned in the production of the injury, and, further, that 45.6% of those who recovered are fit for duty.

In order to study the full benefit likely to arise from the use of antiseptics and the reduced-calibre bullet, a study of the results of wounds from the latter alone should be made. Of 19 cases occurring in the Santiago campaign we find that none died, that 14 were restored to duty, and five were discharged on surgeons' certificate of disability, or otherwise disposed of.

The following table shows at a glance the successive results of gunshot wounds of the knee from the days of the Civil War to the present time.

#### GUNSHOT WOUNDS OF KNEE-JOINT.

CIVIL WAR. 1861-1865.				
LARGE CALIBRE, ANTISEPTIC.				
Mortality	:	:	:	53.7%
Recovery	:	:	:	46.3%
Total, 100.0%				
				Fit for duty . . . 00.0%
				Unfit for duty . . . 100.0%

33 cases by Reyher and von Bergmann.

RUSSO-TURKISH WAR. 1877-1878.

LARGE CALIBRE, ANTISEPTIC.

Mortality	:	:	:	11.1%	Fit for duty . . .	:	:	—
Recovery	:	:	:	88.9%	Unfit for duty . . .	:	:	—
Total, 100.0%								

62 cases.

REPORT SURGEON-GENERAL'S OFFICE SINCE 1898.

VARIOUS CALIBRES, ANTISEPTIC.

Mortality	:	:	:	8.0%	Fit for duty . . .	:	:	45.6%
Recovery	:	:	:	92.0%	Unfit for duty . . .	:	:	54.4%
Total, 100.0%					Total, 100.0%			

19 cases.

SANTIAGO CAMPAIGN. 1898.

REDUCED CALIBRE, ANTISEPTIC.

Mortality	:	:	:	00.0%	Fit for duty . . .	:	:	73.6%
Recovery	:	:	:	100.0%	Unfit for duty . . .	:	:	26.4%
Total, 100.0%					Total, 100.0%			

To recapitulate them: (1) We find that the mortality of gunshot injury of the knee-joint in the Civil War was 53.7%, and as amputation was universally done all those who recovered escaped with the loss of a limb; unfit for duty; (2) that 33 cases of gunshot wounds of the knee produced by the larger calibre lead bullet in campaign, reported by Reyher and von Bergmann, treated antiseptically, gave a mortality of 11.1%; (3) that 62 cases produced by a variety of missiles reported by the Surgeon-General since 1898, similarly treated, gave a mortality of 8%, and that 45.6% of those who recovered were restored to duty; (4) that of 19 cases in the Santiago campaign by the reduced-calibre bullet the mortality was *nil*, and that 73.6% of the wounded recovered fit for duty. It is thus seen that the humane features of the reduced-calibre bullet have operated not only in diminishing the mortality in gunshot injuries of the knee from about 8 or 11% to *nil*, but that it has increased restorations to duty 28%, as shown by comparing the last two tables.

The foregoing figures relating to the humane features of the reduced-calibre bullet established fully the predictions of von Coler, who said at the conclusion of his experiments with the German Mauser that if it be found that wounds by the small bore are aseptic, joint wounds will be the most favorable of all bone injuries to treat.

#### NOTES IN CUBA.<sup>1</sup>

BY CHARLES C. FOSTER, M.D., CAMBRIDGE, MASS.

LAST February I attended a meeting of the Pan-American Medical Congress at Havana. The congress itself was rather disappointing. It was a young organization, and the papers were apt to be of the didactic class, or perhaps had previously been read before other societies. Some very good

<sup>1</sup> Read before the Cambridge Medical Improvement Society Feb. 24, 1902.

new work was reported upon public health and yellow fever. Some of the side-shows, so to speak, were interesting, for various reasons. One night a large public meeting of welcome was held in the largest theatre, the Tacon, attended by the authorities and the high society of Havana. A long and detailed disquisition on obstetrics was delivered before an audience consisting largely of ladies, who, I trust, were duly edified, though they seemed a bit puzzled.

One day the whole congress took luncheon with a large sugar planter, at his estate about fifty miles from Havana. We went by special train, at our host's expense, through the beautiful rolling upland country, with its groves of palms and fields of sugar cane. This part of the island, by the way, is thoroughly healthy and has a delightful climate. A hot night is almost unknown in Havana. On reaching the estate we visited the mill, where grinding was in full swing; then, while you at home were in the midst of a blizzard, we had luncheon out of doors in a beautiful grove of palms and orange trees—a most excellent luncheon, in which the favorite local dishes—chicken cooked with rice and roast young pig—were important items.

If the congress had been held this year instead of last we should not have got that luncheon, for then the planters were very hopeful and very fond of us. This year they feel differently. Even then conservative men were not increasing their investments, but waiting to see what we were going to do. Two different planters told me that all through the war they had continued to run their plantations, presumably by paying one or both sides for protection, but they said that if we left the island they would have to leave, too. For the same reason the conservatives were taking no active part in politics; their lives would not be safe an hour after we left.

Cuba is now being well governed, but there is no guarantee of permanence. Much money is being spent, chiefly on schools, hospitals, roads, police, etc., but it is being spent honestly and to good advantage, and the island can well afford it as long as times are fairly good. If we bring back the old hard times as they existed under Spanish rule, even if we do it in a different way, the result will be the same—revolution. The Cuban cares little whether the cause of his poverty is official corruption or congressional enactment. Havana is today far cleaner than New York, and public order is better; but that will not feed the country laborer when the sugar mills shut down, or help his employer.

To us the most interesting work done in Cuba is that connected with public health. At first, at Santiago, the natives refused to work as scavengers, though offered good pay. They felt sure they would never get it, and considered such work absurd. So some of them were forced to work under guard; and when they received their money that night, and every night, they were the most astonished men in Cuba. Since that time they have worked willingly.

The cleaning of Havana was a notable piece of work, for the city is a hard one to sanitize. It is very compactly built, the houses of one street backing directly on to those of the next, with no yards, alleys or other open spaces between. In the centre of each house is a courtyard, and in this usually a cesspool. This courtyard and the rooms on the ground floor are often below the street level. There are few sewers, and these few do not carry off rain-water, which, during the tremendous tropical showers, rushes along the streets until it reaches the harbor. The pavements are very old and irregular. After the city was cleaned, the people were gradually taught to keep it clean by a system of inspections and fines, which will certainly not be so efficiently kept up under any civilian administration.

The Spaniards left many fine public buildings behind them—barracks, courts, jails, charitable institutions and hospitals; the schools were of little account. These were without modern sanitary appliances and were horribly filthy. Most of the expense of refitting them was for cleaning and for washbasins, bathtubs and water-closets. Many of the walls had to be scraped and whitewashed, and floors had to be taken up and wholly or partly replaced. Now a Cuban floor is built as follows: First, heavy beams are laid, not more than a foot apart; these are covered with thick tiles; upon these is spread a foot or more of earth, and above all is laid a pavement of tiles or stone slabs. This is necessary for comfort in hot weather.

After an institution has been refitted for its purpose, General Wood secures the best native staff he can, and sets them to running it. He gives them help if necessary, such as head teachers and head nurses, from the United States, but his idea is to have them standing on their own bottom as soon as possible. A good example of this is his management of the police and gendarmes, whom he has patterned largely after those of President Diaz, and recruited almost entirely from the late Cuban army. A year ago the Americans connected with the force had been reduced to two, and they were simply inspectors, exercising no command. With kind treatment, strict discipline and good backing, the force soon became efficient, and has maintained order all over the island without any help from the American soldiers. Various brigand bands in the south were broken up, sometimes in sharp fights. The capture of certain brigand chiefs was a difficult matter, for no man dared give any information about them. Finally, men who knew them by sight were selected, given rations for several days, and hidden in couples where they could watch various trails along some of which, sooner or later, the much-wanted men must pass. In this way they were finally secured.

The general makes frequent personal inspections of all institutions in and about Havana, and makes them without warning. He also makes frequent trips of inspection to other parts of the island.

You may remember that a year ago the papers were full of contradictory reports on these matters, many of them accusing Wood and other officials of all sorts of corruption and inefficiency, and usually started by disappointed persons, Cubans and others, who had not succeeded in getting places they wanted, or had lost them for cause. Finally, *Harper's Weekly* sent John Kendrick Bangs to Havana with orders to see everything he could and to report just what he saw. He came in a quite suspicious state of mind, but went away much relieved, for General Wood showed him all he wanted to see, and sometimes more. One day when I was with them, before he knew where he was going, he found himself in the middle of a ward of the leper hospital, filled with advanced cases, repulsive wrecks of humanity, and all with the same hopeless, apathetic air. When a patient enters the San Lazaro he stays there until he dies, which may mean years of waiting. The gate is guarded, and he is a life prisoner. Bangs got out of that ward as soon as possible, and utterly refused to enter another.

The jails were very interesting. The cell system is not used — the climate forbids. The prisoners sleep in large dormitories, white men in one, negroes in another, and Chinese in a third. I was struck by the fixity of the prison types. The white men were so exactly, so startlingly like those at Charlestown or Concord, and also like the pictures I have seen of English and Italian criminals.

The convicts all work, even in the women's prison, where washing and sewing have been introduced. A very advanced system is followed. The man is paid for his work, one-third of the money being turned over to the state, one-third to the man's family and the remainder to him. In the prison is a canteen, where a man whose conduct has been good is allowed to buy various extras. Cigar-making and shoemaking are the chief industries. One of General Wood's first acts as governor was to have all prisons investigated by two independent commissions, to make sure that no man was unjustly confined. Many were released, who had completed their terms, or had never been tried, or whose convictions seemed to have been unjust. Convicts have the right at any inspection to make complaints to the inspector, orally or in writing; and this is often done.

The law in Cuba is still Spanish law, and the Spanish "garrote," which General Wood considers the most humane of all known methods of capital punishment, is still in use. The executioner is a prisoner under sentence of death, who receives a pardon after doing a certain number of executions. He does not get it as quickly now-a-days as under the old régime.

Yellow fever was to me the most interesting of any of the things I hoped to see in Cuba. I had thought about it ever since 1898, when I expected to have to deal with it in my own regiment. At that time I worried a good deal over my own inability to make a differential diagnosis between it

and the so-called pernicious malarial fever. In Cuba I learned that the men there could not make such a diagnosis, and they declared that certainly in nine cases out of ten, and probably always, the disease is just yellow fever.

The Yellow Fever Commission of the Army Medical Department had just finished its investigations, and Major Read read his report to the congress. The experiments were carried out with great care and thoroughness and were very convincing. Healthy subjects were chosen, and were carefully quarantined for three weeks. Then they were divided into squads, and exposed to all the various supposed methods of infection. Some slept for three weeks in the beds and wore the pajamas of men who had died of the fever, both beds and pajamas being filthy with black vomit. Others inhabited a hut divided across the middle with mosquito netting. One side was hung about with a great quantity of the filthiest obtainable clothing and bed linen from fatal cases, but mosquitoes were carefully kept out. The other end was made thoroughly clean and wholesome, but a number of infected mosquitoes were let loose there. In the dirty-clothes end of the hut not a man caught the fever; in the mosquito end all caught it, thus proving that the mosquito can and does transmit it. Only one non-immune was found whom the mosquitoes did not succeed in infecting. Every new bit of information as to the distribution of the disease or to the habits of the mosquito fits in perfectly. For instance, the mosquito does not rise far above the ground. Two years ago at the palace in Havana almost everybody who slept on the middle or lower floors took the fever during the summer. The servants' quarters are in a small building set on top of the roof of the main palace, and not a single servant had the fever.

Again, in outbreaks on ships far out at sea careful search has found the mosquito living on board and breeding in the bilge-water. If some of these came aboard freshly infected just before the ship sailed, it would be nearly two weeks before they could infect anybody, and very likely the best part of another week before the disease developed. Of course the first case would give an opportunity for the whole cycle to begin again.

I saw several interesting diagrams (prepared before the mosquito theory was demonstrated) showing the beginning and spread of yellow fever in certain small towns. It seemed to come down the main road, and the first case or cases would appear in one of the first houses as you enter the town. The next ones would occur in houses close by. Undoubtedly some patient in the early stages stayed long enough in that first house to be bitten by mosquitoes, which a fortnight later transmitted the disease to members of the family.

I saw one very typical case, showing the characteristic yellowing of the skin and eyes, and the great restlessness. This was one of the severest of the mosquito-bite cases, had probably been bitten by three or four insects. Experimental

injections of blood had then been given up, as the resulting cases were altogether too severe.

As to the treatment of yellow fever, there is nothing new. No successful serum, either curative or preventive, has been developed, and the bacillus of Sanarelli is a failure. The patient should be put to bed as early as possible, protected from mosquitoes—to prevent spreading the disease—and kept just as quiet as possible. The bowels should be cleared out well once with salines; after this absolutely nothing should be given by the mouth, except perhaps a little ice to suck; all food by the rectum, and occasionally a laxative enema; cold sponging for the temperature. Large ice-water enemas have been tried, but they cause great discomfort and shock, doing more harm than good. The convalescent patient must be kept in bed a good deal longer than he wishes to stay, otherwise fatal relapse is very likely to follow.

Interest in the medical care of troops in the tropics led me to visit Columbia Barracks, the station of the Seventh Cavalry, a few miles out of Havana. It is well situated, on a hill, with a view of the sea and a first-rate water supply. The health of the men was excellent. Very few were sick, and most of those only slightly so, while the well men looked thoroughly strong and hearty. All said that Cuba, in the north at any rate, was a first-rate place to live, if a man took care of himself. In making route marches through the country, bad water, infected with typhoid, was apt to be found in the towns and villages. This was always boiled, and made palatable by squeezing into it the juice of wild oranges and lemons, which were generally plenty.

The care of the men was much the same as at home, but the system of treating men who were only slightly sick in their own quarters had been given up, and every man excused from duty for medical reasons was taken into hospital. During the summer men visiting Havana on pass were required to leave the city before sunset.

I found the trip a most satisfactory one, both as to weather and matters of professional interest, and can recommend it to anybody who can spare a fortnight in winter. I left New York in a snowstorm and returned in a blizzard, and the beautiful summer weather I enjoyed in the interval seemed almost like a dream, as I looked back upon it.

#### BIRTH- AND DEATH-RATE AS INFLUENCED BY OBSTETRIC AND GYNECIC PROGRESS.\*

BY GEORGE J. ENGELMANN, M.D., BOSTON,  
President Obstetrical Society of Boston.

(Concluded from No. 20, p. 508.)

(3) *Death in Childbirth.*—The same progressive methods which facilitate the delivery of the child and would be expected to lessen the number of stillbirths serve to minimize the dangers of parturition for the mother, and should

\* Read before the Obstetrical Society of Boston, Jan. 21, 1901.

decrease the mortality; in addition, the introduction of aseptic practices has eliminated the greatest element of danger to the parturient women—the ever-threatening invasion of the dreaded puerperal fever. We know that hospital mortality has been reduced to almost *nil*, and in these institutions desperate cases of all kinds are concentrated, every contracted pelvis seeks their aid, patients are hurried in when in convulsions or flooding to death, and are often received in a moribund condition. In view of the splendid results which hospital statistics prove attainable, deaths should be few indeed in the community at large where the normal physiological act of parturition prevails, but as compared with the low mortality of .2 to .6% in some of the great maternities the vital statistics of our large cities present most unsatisfactory results.

*Hospital death-rate.*—Hospitals all clearly indicate the advent of the antiseptic era by a practical disappearance of puerperal fever and a prompt and marked decline of mortality, but this improvement has not everywhere continued, and many now show no better results than those recorded one hundred years ago.

I can but recall facts already well known, as there is absolutely nothing new to report since the admirable papers of Garrigues,<sup>14 16</sup> unless it be that in some of our great American maternities the *death-rate is again increasing*. In the New York Maternity<sup>14</sup> we find a mortality of 6% in 1882, or, for a longer period, 1875-1883, 4.17%, and after the reform inaugurated by Garrigues this promptly declined to .18% throughout the ten years from 1884-1893. In the Lying-in Hospital of Boston this same high mortality prevailed in 1883, a death-rate of 6%, and in the ten preceding years, 1874-1883, as in New York, 4%; the antiseptic era was inaugurated by a decrease of the death-rate to .8%, 1884-1893. Since this time a marked increase is observable, the mortality averaging 1.3% in the next six years up to 1900. The lowest mortality is observable here, as in the New York hospitals, in the earlier years of the antiseptic era (1884-1893); best, .18% in the New York Maternity, .2 to .6% in the Clinique Baudelocque, and yet in many it is *now* .8%, and in some over 1%.

There is no doubt as to the great reduction of the hospital death-rate, even if we exclude the fearful years of epidemic invasion, because it would appear that in the period preceding the antiseptic era these institutions, which had become saturated with the deadly germ, were never free from its ravages; 4% was a frequent death-rate; not exceptional were such figures as 10% in the Vienna Lying-in wards (1841-1846), or 11% in the Paris Maternité, and during the most serious epidemics 15% and even 20% was reached. The general hospital average is best represented by the grand total of 2,000,000 confinements in public institutions collated by Le Fort,<sup>16</sup> which show a mortality of 3.4%.

In the previous century, strange to say, we often find conditions much more favorable and



very good indeed as compared with results of the present day. In the Dublin Rotunda, the death-rate is only about 1% in the half-century from 1757 to 1814. In the Marion Street Lying-in Asylum of New York, in the twenty-one years from 1866 it was but 1.1%, and Goodell, under the favorable conditions of the Preston Retreat, reduces his mortality to .8%. Such favorable results were obtained in the days before the era of post-mortem study and of frequent examinations by students, or if after such time, by the avoidance of these dangers; but when compared with some of the present-day maternity records these results are certainly astonishing, and lead us to wonder why the death-rate in some of our hospitals and in the community at large has not been lowered far more by modern progress. It is now about what it was over 100 years ago (Table IV).

TABLE IV.  
DEATHS IN CHILDBIRTH PER 100 BIRTHS.  
A.—HOSPITAL RECORDS.

	Pre-antiseptic Period. Earlier Records. Hospital.	Antiseptic and Aseptic Period. Modern Records.
Rotunda, Dublin . . . . .	1757-1814	1.5
Copenhagen . . . . .	1867-1881	.5
Marion Street Hospital, New York . . . . .	1864-1866	1.1
Preston Retreat . . . . .	—	.8
2,000,000 births, all hosp., LeFort . . . . .	—	3.
During epidemic 8-20% . . . . .	—	10.
New York, Maternity . . . . .	—	4.2
Boston, McLean . . . . .	—	4.
Dorpat . . . . .	—	1.3
Berlin . . . . .	—	1.5
Würzburg . . . . .	—	1.9
Paris, Baudelocque . . . . .	—	.7
New York Infirmary, Women and Children . . . . .	—	2.6
Blackwell's Island, New York . . . . .	—	1
Flower Hospital . . . . .	—	5.

B.—COMMUNITY AT LARGE.

PRE-ANTISEPTIC PERIOD.		ASEPTIC PERIOD.	
Paris (hospital epidemic year) . . . . .	1856 .26		
Paris, St. Petersburg, Edinburgh, Duncan . . . . .	1860-1865 0.6-.8		
Copenhagen, Stadfeldt . . . . .	1850-1874 .8		
New York, Irish . . . . .	1867-1875 1.1		
Baden, Hegar . . . . .	1864-1866 .7		
England, county . . . . .	1867 .43		
England, towns . . . . .	1867 .49		
England, private practice, Duncan . . . . .	— 1.		
New York . . . . .	— 1.1	.42	1890-1896
Berlin . . . . .	1877-1884 .4	.57	1896-1900
Rhode Island . . . . .	— .8	.27	1884-1894
Michigan . . . . .	— 1.7	.6	—
		1.4	—
		.3	1896
			Budapest.

*Community at Large.*—Great as are the numbers involved in hospital practice, they are yet but an insignificant fraction of those confined in their homes among the population at large, as shown by the data found in the vital statistics of

the entire country, and here we must find the figures by which fairly to gauge the results secured and the practical value of obstetric progress. As far back as 1856, in that year when the death-rate in the Maternité of Paris reached 5.3%, it was but .26%<sup>16</sup> in the twelfth district, one of the poorest of the city. Lusk<sup>17</sup> records a mortality of 1.1% in the city of New York, for the nine years from 1867 to 1875. Florence Nightingale<sup>18</sup> cites the report of the Registrar General of Great Britain (1867) to show that the mortality in childbirth in sixty-four of the healthier districts of England was but .43% and .49% in eleven large towns. Hegar<sup>19</sup> finds it to be .73% in healthy districts of Baden (1864-1866).

But these are scattered records, which only suffice to recall the well-known fact that the mortality in the community at large at one time was far less than that of the hospital. To observe closely the effect of obstetric progress, it will be necessary to follow the statistics of a given locality for a number of years, and these should be the years immediately before and after the general introduction of antiseptic practice. This era varies. It is earlier in one country than it is in another; earlier in the hospital than in the community at large. In Austrian hospitals this was in 1879; in those of Paris, in 1882; in Germany, throughout the community at large, in 1883; in this country in 1884, and here it appeared at the same time in the hospital records and in the vital statistics of the community.

In the city of Berlin,<sup>21</sup> the death-rate in childbirth from 1877 to 1888 was .4%, and from 1884 to 1895, it was reduced to .27%. The figures for the corresponding period in the State of Rhode Island are .67% and .51%, a reduction at the same time but not so marked, and the death-rate higher in both periods than in the Prussian capital. In the State of Michigan, from 1875 to 1884, it was 1.7%, and from 1885 to 1894 1.4% — a distinct reduction in each case.

I will say that other of the large cities of Europe show about the same percentage as Berlin, which gave an average of .27% for recent years; in 1898, .29%, almost the same as Budapest,<sup>20</sup> .3%. This, moreover, corresponds well with the English data given, although Lusk's observation in the city of New York shows 1% (1867-1875), Matthews Duncan<sup>22</sup> records Paris (1862) with .63%, St. Petersburg .68%, Edinburgh .64%, and calculates the actual results by correction for the invariable omissions, to be respectively .83%, .9% and .82%, and Stadfeldt<sup>23</sup> finds a death-rate of .8% in Copenhagen for the twenty-five years from 1850 to 1874.

\* These figures cannot be looked upon as absolutely correct, by reason of the great variety of classification. Many of the deaths in childbirth are concealed under other headings such as "convulsions," "pelvic inflammation," "peritonitis," "albuminuria," and others; yet I take them to be relatively correct and indicative, as the same proportion will probably escape proper classification year after year, and the results given serve well for purposes of comparison. The figures of Lusk and Garrigue are carefully compiled and I also have endeavored as far as possible to verify the figures given under deaths in childbirth by comparison with all found under separate classification such as puerperal fever, puerperal eclampsia, puerperal sequences, rupture of uterus, extra-uterine pregnancy, uremia, etc.

If we consider these figures, between .6% and .8%, during the preantiseptic era and the more recent ones of Berlin, of Budapest and of Rhode Island, for the modern era, .3 to .6%, we cannot help but look upon the mortality as excessive and unduly high when compared with modern progress and with the modern maternity with desperate cases of all kinds, and its mortality of from .2 to .6%.

The lying-in hospital is the haven of refuge for all who are in danger at the time, who have once experienced difficult labor, or have any fear of complications, yet, with all the life-endangering conditions and the serious operations necessitated, the death-rate is below that of the community at large; let me add, in *most* hospitals, *not in all* by any means.

*Private practice.*—Some slight progress is evident in vital statistics of cities and countries, a slight decrease in the death-rate, due to a lessening of the cases reported as puerperal fever or puerperal sepsis. In private practice mortality is about the same, but higher than it is in the best-managed hospitals, much as it was in preantiseptic days. The only records of private practice I can recall are those of Matthews Duncan and McClintock,—16,108 cases with a mortality of .75%,—while the private practice of Duncan himself shows the higher mortality of 1.08%. As Garrigues says: "Leaving out the exceptional results of prominent obstetricians with a wealthy clientele, the mortality in private practice is about 1%." This is likewise unduly high, and not at all in keeping with the results of the best lying-in hospitals. In the Out-Patient Department of the Lying-in Hospital, where exceptional care is given the parturient, and where we have practically an average class of cases, the mortality is fully equal to, if not greater than, that of the best hospitals, where a far greater number of difficult confinements occur, and it is no better than in the community at large. In 10,000 cases of the Out-Patient Department of the Lying-in Hospital of the city of New York, a mortality of .4% is recorded, and among 5,040 cases of the corresponding department of the Boston Lying-in Hospital, from 1898 to 1901, the mortality is .3%, really .5%, if we include, as must be done, the more serious cases which were sent to hospitals for the completion of labor.

*Résumé.*—Practically the mortality of the Dublin Rotunda throughout an entire half-century to 1814 is even now exceeded by some hospitals: Boston, 1.3% (1894-1900); Berlin, 1.9% (1885-1895); Dorpat, 1.5% (1888-1893). As a rule it is less, .6% or thereabouts; in many as low as .2%, but then, we must remember that the Copenhagen Maternity, even in pre-antiseptic days, yielded similar results, varying in 1867-1881 from .3 to .6%, once only attaining as high a figure as 1.1%. The death-rate throughout the city of New York was 1.1% in pre-antiseptic years, and is that given by Duncan for private practice. During the same period less than 1% (.6 to .8%) is reported for the great cities of

Europe, less than .5% for country districts and many towns of England—practically the figures observed in Berlin at that time, .4%; since then, with the advent of antiseptic practices, it has decreased to .3%,—as it is now also in Budapest. In this country the mortality is higher, higher than it was in England or in Prussia under the old régime: in the State of Rhode Island, .7% before 1884, .5% since, and now 1.4% in Michigan. Mortality in childbirth in the community at large has decreased with the antiseptic era, but not to the extent we should expect from the low death-rate of some maternities, which should serve as a standard as to what *can* be accomplished with the means now at our command: with this standard of .2 to .8%, and the great number of desperate cases included in view, we should expect a much lower mortality in the community at large.

Progress is evident; puerperal fever has been banished from the hospital, and yet when we compare the results of the Copenhagen and Dublin institutions, .5 and 1%, with the Boston, Berlin and other hospitals at the present day, with 1.3 and 1.9%, the facts are confusing and correct deductions difficult. Large numbers only are conclusive, and the total hospital mortality of the present is probably nearer 1%, while that of forty years ago was 3%.

#### CONCLUSION.

A careful review of the figures here presented clearly shows that obstetric and gynecic progress has left no distinct impress upon the record of vital statistics comparable to the decreasing death-rate and the control of epidemics which mark the development of medical science. The birth-rate, the fecundity of woman, has not increased, it has decreased; stillbirth is decreasing to some extent in Europe, very little in this country; the death-rate in childbirth has been reduced somewhat by the introduction of antiseptic practice, less in this country than in Europe, notwithstanding the still prevailing supremacy of the midwife abroad. But on both sides of the Atlantic it is still greater by far than it should be, greater by far than it is in many maternities, where desperate cases of all kinds are concentrated. In hospitals the results of modern practice stand clearly revealed, but the splendid record made in the early years of the antiseptic era is not everywhere maintained, and in some of the leading maternities of this country the death-rate is again increasing.

Vital statistics show that in the community at large the effect of antiseptic precaution is distinctly marked, but by a very trifling decrease only in the death-rate, more especially by a diminution in the deaths from puerperal fever; those from eclampsia are more frequent. The death-rate in the community, the death-rate in private practice, which in the light of modern scientific medicine should be an inappreciable figure, is still greater than that of most maternities. All in all, mortality in childbirth shows with some distinctness the evidence of obstetric progress,

but the number of stillbirths and the birth-rate show fluctuations which are controlled by contrary factors, totally different in character, and completely obscuring the influence of medical science.

In the high death-rate of the child in illegitimate labor, the results of criminal interference appear distinctly evident. In decreasing fecundity we see the deteriorating influences of refinement, of the higher civilization, of luxury and of social aspirations,—all in part accountable for the low birth-rate. But, whatever the motive, the distinct cause of diminishing fecundity is the intentional limitation of the family, the determination not to be troubled with children at all, or only in such numbers as are deemed appropriate by husband and wife to their comfort, to their social and financial status. In the unequal contest, medical science yields to human vanity and desires and its influence is completely effaced so far as the population at large is concerned. Only in the somewhat lessening death-rate of child-bearing women and in the sporadic decrease of stillbirth do we see an evidence of its progress.

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A CENTENARIAN.—Mrs. Bridget McCormick, a native of Ireland, died in Flushing, borough of Queens, May 14, at the reputed age of 105 years.

## Clinical Department.

## TWO CASES OF TETANUS FOLLOWING VACCINATION.

BY LYMAN ALLEN, M.D., BURLINGTON, VT.

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THE present epidemic of smallpox and the consequent large amount of vaccination make of added interest any cases of infectious disease that may seem to have been inoculated at the time of vaccination.

The occurrence in Camden, N. J., of eleven cases of tetanus in those who had recently been vaccinated has been fully published and discussed in various medical journals. Other cases of tetanus in patients who had recently been vaccinated or who had used diphtheria antitoxin have been reported from other cities, and for the purpose of making the record more nearly complete I wish to add the report of two cases of tetanus following vaccination which occurred last fall in Burlington, Vt.

CASE I. Mary E. C., age eleven years, was vaccinated Oct. 2, 1901, and developed an ulcer the size of a fifty-cent piece. This was dressed by the family and kept covered with a clean linen cloth, no antiseptic being used. While the ulcer was in this condition the patient helped her mother to pot some garden plants. On Oct. 21, 1901, symptoms of tetanus appeared, and she died two days later. Twelve bottles, each containing 20cc. of Mulford's antitoxin, were used, beginning twenty-four hours after the onset of symptoms, which was as early as the serum could be obtained. There was no autopsy.

CASE II. Minnie B., age twelve and one-fourth years, was vaccinated Oct. 4, 1901, and twenty-one days later developed symptoms of tetanus. She died in thirty-eight hours. No antitoxin was used and there was no autopsy. As far as can be ascertained the ulcer of vaccination was unprotected in this case.

These two are the only cases of tetanus that have developed in this city following vaccination, and the only deaths from tetanus since Sept. 20, 1900. The number of vaccinations during this epidemic was approximately 8,000.

To endeavor to locate the cause of the infection in these two cases samples of soil were taken from several localities and tested by Dr. B. H. Stone of the Vermont State Laboratory of Hygiene. These samples were obtained as follows: No. 1: Soil from garden, 46 North Winooski Avenue, where a horse died of tetanus six months previously. No. 2: Soil from side of walk, same address. No. 3: Soil from street in front of 16 Smith's Lane, the home of Mary E. C. No. 4: Soil from alley, 16 Smith's Lane. No. 5: Soil from street, 27 Convent Square, the home of Minnie B. No. 6: Soil from north side yard, 27 Convent Square.

After growth in sterile bouillon for seventy-two hours at 37° C., the cultures were subjected to a

temperature of 80° C. for one hour and then transfers were made to fresh tubes of sterile bouillon and grown three days as above. All these samples except No. 1 showed bacteria identical morphologically with the tetanus bacillus (not pure cultures). A guinea-pig was inoculated with fifteen minims of No. 4. This animal died with symptoms of tetanus after four days, and upon autopsy showed the presence of an abscess about the size of a small shot, at the point of inoculation, with a slight blackening of the surrounding tissue.

The tubes were again subjected to a period of incubation, after which white mice were inoculated with small portions of Nos. 1, 2, 3, 4 and 5 respectively (Dec. 26, 1901). At 5 p.m., Dec. 27, the mouse inoculated with No. 4 showed marked symptoms of tetanus and the one inoculated with No. 3 showed slight symptoms of tetanus. At 6 p.m. the one inoculated with No. 2 showed marked symptoms.

From these tests it is evident that the bacillus of tetanus is to be found in the soil in many localities, and the only wonder is that more cases of tetanus do not occur from ordinary wounds. The fact is well known that the tetanus bacillus when inoculated into animals in pure culture is frequently destroyed by the activity of the tissues and fluids of the body, but that it is more likely to grow when the tissues are weakened by infection with the pus-producing organisms. Any other suppurating wound of the size and appearance of the ulcer following vaccination would receive some surgical care or at least some protective dressing, but the laity seem to think that the ulcer of vaccination is different from other ulcerations, and that it should be left unprotected and untreated. Again, the itching that attends vaccinia invites infection from dirty finger nails more than do other ulcerations.

The period of incubation in acute tetanus is from five to nine days, and rarely if ever is it as long as 21 days, and the longer the incubation period the milder the disease and the more favorable the prognosis. In these two cases nineteen and twenty-one days respectively intervened between the vaccination and the onset of symptoms of tetanus, and the rapid course of the disease in each case and the fatal result point to a short period of incubation. It is, therefore, almost impossible that the germs were inoculated at the time of vaccination. This fact, with the positive findings in the animal experiments above mentioned, makes it practically certain that the disease was caused by lack of care in the after treatment of the ulcer of vaccination.

Finally, I can but reiterate the conclusions reached by others writing upon this subject—vaccination should be considered a surgical procedure and be safeguarded by all aseptic precautions. The ulcer of vaccination should be protected from infection and trauma as carefully as any other surgical wound, and to accomplish this all vaccinated persons should either report regularly to their physician for the proper cleans-

ing and dressing of the ulcer, or be carefully instructed at the time of vaccination as to the precautions necessary to be taken to avoid serious complications.

To my mind the evidence is overwhelmingly against the possibility of the lymph in these cases being infected with the germs, spores or toxins of tetanus, and it is not too much to say that no case of tetanus will occur following vaccination if simple aseptic precautions are taken.

## Reports of Societies.

### BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.

ARTHUR K. STONE, SECRETARY.

REGULAR meeting, Jan. 20, 1902, DR. W. T. COUNCILMAN in the chair.

DR. E. G. CUTLER presented

AN ABSTRACT OF SOME OF THE PREVAILING OPINIONS ON THE PERIODS OF INCUBATION, OBSERVATION AND ISOLATION OF SOME OF THE INFECTIOUS DISEASES.<sup>1</sup>

DR. J. L. MORSE: Before speaking of measles I want to speak of a point which has not yet been brought up regarding these diseases, and that is that with one or two exceptions we do not know their cause. We think that they are caused by some organism, but we do not know what the organisms are. We think that in these diseases the source of contagion is contained in the desquamation or in certain secretions. Now, if that is so, I believe that the patient should be isolated until the desquamation or the catarrhal symptoms or whatever the thing is which we think carries the contagion has ceased. That should fix the limit of the isolation, and no fixed time should be set. I certainly should feel that I was being misused if, after scarlet fever, all desquamation had ceased, all catarrhal symptoms had disappeared and I was well, I was kept in isolation a week or two more in order to fill out a certain number of prescribed weeks. Such a rule is not consistent with common sense. We either know something or we do not. If we believe we know we ought to act on that belief and not on general principles.

Analogy leads us to believe that measles is due to a specific micro-organism. Tschakowsky and others have described an organism which they isolated from the secretions and the blood of measles patients. They succeeded in cultivating this organism, but they did not make inoculations on men. Other observers have failed to verify their results, so that we must conclude that at present the cause of measles is not known. We suppose that the organism of measles is contained in the sputum, in the discharges from the nose and eyes and possibly in the breath. We also

<sup>1</sup> See page 533 of the Journal.

suppose that it is contained in the scales of desquamation. The vitality of this organism must be small, but its area of distribution is certainly large.

The contagion of measles is probably usually conveyed by direct contact, but the area of contagion is a large one. It probably can be carried in clothing and be conveyed by a third person. Measles is contagious from the first appearance of the catarrhal symptoms. The activity of the contagion diminishes with the activity of the symptoms. How long it lasts I do not think we can be sure. The contagiousness certainly diminishes rather rapidly. There is no absolute proof as to how long the contagion exists in the secretions or whether or not the desquamation is contagious; that is to say, it seems to be impossible to determine in a case where we think the contagion was due to the desquamation, whether it really was due to it or whether it might not have been due to organisms contained in the secretions which were mixed with the desquamation or caused the contamination. We may think we know, but I do not believe that we really do.

Measles is an extremely contagious disease. It is rare under six months, but does occur at that age and may even be congenital.

Owing to the extreme contagiousness of measles in the catarrhal stage, anything which would help us to make the diagnosis of measles during the stage of incubation would be of the greatest importance. Two signs have been described which may help us in this direction, especially in institutions. Meunier has found a very constant loss of weight in the incubation stage of measles beginning five or six days before the catarrhal symptoms and eight or ten before the eruption. Reynaud has found a hyperleucocytosis during the stage of incubation which commences at the beginning of incubation, increases rapidly and reaches its maximum about six days before the appearance of the eruption; from that time on it diminishes.

Several other signs have been described as occurring in the catarrhal stage before the eruption. Bolognini described a peculiar crepitation in the abdomen which he found in all cases of measles in the catarrhal stage. Other observers have found this crepitation in only a small percentage of cases and these cases all had diarrheal complications. They also found the same crepitation in cases of diarrhea in which there was no question of measles. Koplik's sign is found in about 90% of cases of measles and usually appears in the catarrhal stage. Unfortunately, however, although a valuable sign in diagnosis, it occurs too late to be of much value in limiting the spread of the disease.

In the attempt to get some exact data as to the duration of the stage of incubation, I looked over my cases. I was able to find but one in which I could feel sure of the duration of incubation. This case occurred at the Infants' Hospital. The baby had been in there six weeks, running a perfectly normal temperature. Another baby was

admitted to the ward at two o'clock in the afternoon and stayed there until about four, when it was taken out because of a suspicious cough. That baby developed a measles eruption during the night. The baby which was exposed developed a temperature and coryza ten days later and the eruption twelve days later. I think we can rule out any other exposure in this instance. In order to get some more accurate data I wrote letters to twenty or more physicians in neighboring cities whom I know had had a large experience and were careful observers. I received replies from nearly all. I asked for any accurate data that they had as to the incubation stage of measles and also for data as to the contagiousness of measles during the stage of desquamation after the catarrhal symptoms had ceased. Most of them said that they had no data. Two or three, however, furnished me with some. Dr. Peirson of Salem found the incubation fairly constant at ten days. He states that he has had a few cases in which the contagion was received without any doubt during the desquamative stage after all catarrhal symptoms had ceased. Dr. Twombly of Boston has had the opportunity of observing several epidemics of measles at the Gwynne Home. He thinks that the incubation is in general ten days and that measles is not contagious in the desquamative stage. Dr. Houghton of Brookline feels very sure from his experience that the stage of incubation is 12 days. Dr. Spooner of Hingham has recently had the opportunity of observing a small epidemic in Hingham. In one case the incubation was 8 days; in another, 11 days; in two, 13 days; and in one, 15 days.

Just one more thing, and that is, it seems to me that measles is a serious disease and that we should not look at it from any other point of view. I think the position taken by a Dr. Wahrer of Fort Madison, Iowa, at the meeting of The American Medical Association at Atlantic City two years ago, that while measles is a very slight disease in children it is severe in adults, and hence that all children should be exposed to measles in order to have it over with in childhood, is entirely wrong. The hemorrhagic form is very severe. Then there are the complications of eye, ear and lungs, which are extremely severe. In addition, I have seen acute nephritis, hemiplegia, aphasia and laryngitis. As to the laryngitis in measles, the question is whether laryngitis in measles is or is not diphtheritic. The only case of my own which came to autopsy was diphtheritic, and Northrup's experience at the Foundling Asylum seems to show that it is diphtheritic. I feel pretty strongly that laryngitis in measles should be considered to be diphtheritic and treated as such. Less chances are taken in this way.

DR. J. C. WHITE: Will Dr. Morse give us his personal knowledge of instances of measles conveyed by a third person.

DR. J. L. MORSE: I have no personal experience. I have found several cases in literature where the evidence seemed quite clear.

**DR. T. M. ROTCH:** The report of the committee has very thoroughly covered the ground, but in presenting such a report in print it is often supposed by those who read it to be more authoritative than it really is, and in this way it greatly influences the public. We should, therefore, be careful as to the wording of such a report, and it seems as though the report might be somewhat elusive in regard to what it says concerning the isolation of scarlet fever, and the long period of isolation which has just been recommended. For instance, certain complications of scarlet fever, such as nephritis, evidently should not necessitate the isolation of the patient until recovery. Great harm might come to children having the complication of scarlatinal nephritis, if they were isolated for a long period, for what they need is to be free from isolation as soon as possible. Then, again, each case differs materially as to the length of time during which it should be isolated. As I have studied cases of scarlet fever in private practice, the period of desquamation is often so short and the catarrhal symptoms so soon pass away, that it is perfectly safe to thoroughly disinfect and bring the isolation to an end. After having done this, I have allowed the children to go among the other children in the house, and have never seen any spread of the disease.

If we really wish to stamp out these diseases by means of isolation and thorough disinfection, we shall be much more likely to accomplish our purpose by not giving the impression to the public that this long period of isolation is always necessary, for if we do insist upon it the public will be more apt to refuse to have their children isolated.

In regard to what has just been said as to the length of time during which pertussis should be considered to be contagious, as depending upon the time that the characteristic cough exists, I should say that in many children, unless there is an actual whoop, there is no characteristic cough, and that children will cough for an indefinite time after whooping cough, simply because the nervous reflexes are easily affected by any atmospheric change, and that in all probability these children are not a source of contagion.

In regard to the contagium being carried by a third person in measles, it is very doubtful that this has been proved. It is true that it is very contagious in its earlier stages, and that the area of contagion is great; it is also evident, however, that the contagium soon passes away, and that the members of households who are affected by the contagium are so affected in the very early stages of the disease. The period of incubation in measles has, in my experience, been about ten days; we should, therefore, warn the public that measles is very contagious in the prodromal stage, before the efflorescence has appeared; also, that a child may have only a slight amount of fever, scarcely any cough, and feel perfectly well in the prodromal stage of measles, and yet be a marked source of contagion to others. I have seen children who were feeling so well on the second day

of the prodromal stage that an idea has arisen among the laity that unusually good spirits is one of the prodromal symptoms of measles.

**DR. THEOBALD SMITH:** This is not a subject in which the laboratory can give much assistance to clinical and preventive medicine at the present time, for two reasons: The micro-organisms of only two of the diseases mentioned are known, namely, diphtheria and typhoid, and much—very much—has been added to the sum of knowledge of these two diseases by careful laboratory investigations. Of the rest, the agents are morphologically unknown to us. The second and weightiest reason for the inadequacy of the laboratory is the fact that the eruptive diseases are (with the exception of vaccinia) not known to attack animals and hence quite inaccessible to more profound study. It seems as if the organisms that produce these diseases stand quite apart from the bacteria. There are many indications to support this view. Among others, the cyclic course of all these eruptive diseases, as compared with the more irregular course of the bacterial diseases, suggests to us that we probably have to do with organisms which have certain characteristics which the bacteria do not possess, and I do not think that the laboratory is going to add very soon to the knowledge you have today. I believe that the hospital and the bedside are going to clear up whatever questions arise concerning the period of incubation, etc., and it seems to me that every physician, with the greatest care, should note and record cases where this period can be absolutely established, because it cannot be established in any other way. I do not think that anything is going to take the place of the practical experience of the physician on this particular subject.

The period of incubation has been stated in the report and by the speakers to be quite variable, especially with reference to scarlet fever. It seems to me, speaking entirely from a theoretical point of view, that the period of incubation must be fairly constant, and where there is a wide variation something else must be brought in to explain it. In the case of the long incubation of scarlet fever there may have been a latency of the organism on the mucous membranes, and the disease did not begin until the proper time arrived for the virus to be absorbed.

Some ten years ago I was engaged in the study of bovine malaria. At that time the period of incubation in that disease was supposed to be 40 to 60 days. It was discovered, however, that the actual period was not over 10 days and that the micro-organism had to go through some evolutionary stages outside of the animal in a secondary host. Whenever, therefore, the period of incubation departs from the average, our investigation should be more thorough and we should be on the alert for secondary influences that may be concerned.

Another subject bearing upon our theme is the persistence of infection after recovery. Fortunately much has been learned on this subject through bacteriological study. Some seven years



ago, I think, it first became generally known to the profession that diphtheria bacilli could, and frequently did, persist in the throat of recovered cases. But even earlier than this was this tendency to persist known to investigators.

In 1893 the German government was trying to protect its eastern territories from the cholera, and great efforts were made to locate infected individuals and it was found that there were carriers of the comma bacillus, although such carriers might not become diseased at all. Then came the discovery of the typhoid bacillus in the urine after recovery. With the eruptive diseases there is an exit provided for the micro-organisms. Evidently the skin is the final place for the bacteria to localize, multiply, and that is probably the place from which the bacteria escape in order to continue their life in another individual. It is easy to understand how this persistence of the infectious agents after recovery may enter to befog our information concerning the actual period of incubation of the succeeding case. The period of incubation is of great interest to students of disease, for they do not know what goes on during that period. It seems to me that if we knew precisely what takes place in that period, medicine could make itself a hundred times more useful than it is today. In tetanus everything is done during the period of incubation, which decides the fate of the individual. It is probable that in other diseases the period of incubation is of equal significance. It seems that in this period (and I mean the real period and not the apparent period) there is a slow multiplication of the micro-organism going on. The slowness of the multiplication is probably due to the normal bactericidal or microbicidal powers of the body cells and fluids. This multiplication of the organisms and their destruction goes on up to a certain point, when there suddenly appears in the body a new or an augmented bactericidal force. This, setting free a large amount of poison locked up in the micro-organisms, suddenly causes symptoms which usher in the disease. The disease really starts in at the beginning of incubation, and the fate of the individual is often decided during that period. If we could recognize infection during this latent period, many lives otherwise doomed could be saved.

DR. E. M. BUCKINGHAM: The difficulty in determining the incubation stage of measles is that the apparent prodromal stage varies greatly in length and in intensity. Incubation may glide into a mild prodromal stage so gradually that it is hard to determine when symptoms begin. I have formed the impression, in seeing cases at the Children's Hospital, that they are less contagious at the beginning if the patient is not coughing very much; perhaps he is not throwing the measles poison, whatever it may be, into the air. It is more easy to fix the time of the eruption than the beginning of the prodromal stage. In the only three cases in which I have been able to fix the time of exposure to contagion, that is, cases in which there had been a known exposure with no possibility of exposure afterward nor for a long time before, in

these cases the time from exposure to eruption was 13 days, 14 days and 15 days.

The point Dr. McCollom made with reference to the difficulty of stamping out scarlet fever because of the impossibility of recognizing very mild cases, is well taken. It is not such a very uncommon thing to find acute renal disease in which there is no history of previous illness, but in which inquiry develops the fact that a brother or a sister had scarlet fever at a time which is very suggestive in connection with the case under examination. Scarlet fever is also occasionally found in private practice under conditions that would not be observed but for a careful examination of the family. I mean cases with slight appearances in the mouth, including perhaps a little enlargement of the tonsil but without soreness; a mild but characteristic rash under the clothing, one which disappears before the second visit; a rise of temperature not great enough to be recognized without a thermometer; and the patient not sick.

DR. R. H. FITZ: The question to be decided is distinctly practical. Very positive statements have been made as to what ought to be done. These statements are likely to be made public, and on account of the very decided differences of opinion among physicians, if too hard-and-fast, will meet with so much opposition as to be of but little value. In two only of the diseases concerned is there, at present, the means of scientific control; in the others we are dependent upon a series of assumptions which carry weight in proportion to the number of cases represented. Individual statements are open to so many possibilities of error, of influences which cannot be controlled, that they at the best represent more or less plausible theories. It may be stated in general that during the past thirty years there have been no material advances in our knowledge of the conditions which demand preventive isolation. Longer periods of isolation are easily advised as additional precautions, but they are suggested rather through fear than knowledge. If we yield too much to fears we shall lose some of the ground we already have gained. I have in mind a doubtful case of scarlet fever occurring without obvious cause in a patient who has been a number of weeks in the hospital. After recovery the child, apparently well, is kept isolated for a long time in a room much needed for more serious cases because it has had what may have been scarlet fever. If many such cases were to occur, and the prolonged isolation advocated by Dr. McCollom were insisted upon, more harm than good might result, because the community will not accept so long a period of isolation unless its need is demonstrated without question. It seems to me the report should be so worded as not to err so far on the side of safety as to be impracticable.

DR. GEO. B. SHATTUCK: I was unfortunate enough not to hear the report. I want to ask Dr. Morse one question. He spoke of Koplik's sign being manifest in 90% of cases of measles. I

would like to ask whether that is drawn from personal observation or whether taken from the literature and applies to the European experience, whether it is a personal and American experience, or an experience of the books and foreign experience?

DR. J. L. MORSE: The figures were based on American reports. My own experience leads me to believe that it is present in more than 90%.

DR. GEO. B. SHATTUCK: I take it, when Dr. Fitz says the community will not stand such a prolonged isolation, and that was referred to by one of the other speakers, he means really that such recommendations will have the result of very much increasing the tendency of the community to conceal these diseases even more than they do now.

DR. CUTLER: The committee had in view the difficulties of the subject, and the main object was to get some sort of ground on which practitioners could meet somewhat in common. It was understood that the report was simply provisional and to serve as a working formula. The matter has not been definitely settled in most of the instances, as the speakers have already said. One object was to see what the experience of this society was in these different matters, and this report was made, hoping it might be used not as a standard, but as something which their experience could correct, and after a time we might form a set of conclusions which could be given out as the belief of this society.

I want to say one or two words about what Dr. McCollom said about the time when the first contagiousness of scarlet fever begins. I have had in my own experience a number of cases which proved very conclusively to me that it is not contagious, in what I might call the prodromal eruptive stage. One case I remember particularly, that Dr. McCollom was kind enough to see with me. It was this: A woman who in a family looked over the clean clothes, sewed on buttons, etc., had a cold, or at least had catarrhal symptoms, and a certain eruption on the backs of her hands and on the wrists. She looked over the clean clothes, sewed on buttons, folded the stockings, put her hands in the stockings, looked at the toes and heels, took her hands out and rolled up the stockings. These were put on by the children. I heard at night that this woman was ill, or had something suspicious about her. I saw her late at night. She had the eruption as above stated. I had her isolated, that is to say, tried to keep her from going among the other servants, and tried to have her sleep where nobody was in the room. The next morning she went back into the sewing-room and went to work again. I saw her at nine o'clock and ordered her away. Dr. McCollom saw her an hour or two later. We isolated her and she got along perfectly well. The characteristic eruption of scarlet fever did not appear until some hours afterwards. There was no other case of scarlet fever in that family at all. There were, I think, four children, none of whom had the disease, and each child

put on the stockings that this woman had carefully stuck her hands into. The eruptions I saw were on the wrists and hands.

Another case I saw at a children's party. A child lay on the lounge and was surrounded by children who were very sympathetic. This child was talked to close to his mouth by different individuals, and I do not remember whether he was kissed or not. He had some sort of eruption. I saw him after he had been in that position two hours at least. I carried him in my arms to a carriage and carried him home. This was in the afternoon, about four o'clock. A physician saw him about half-past eight that evening. He thought it was scarlet fever. The next day he was sure it was. That child, although there were forty other children at this party, was not the centre of any contagion. No other cases, so far as I know, occurred in that town.

With reference to what Dr. Rotch said about whooping cough, I think the evidence is, that when the stage of whooping begins then the contagiousness has already commenced to lessen, and it lessens very rapidly. As I understand it, it is just before you are quite sure it is whooping cough that it is most contagious, according to the evidence I have obtained.

#### ASSOCIATION OF AMERICAN PHYSICIANS.

ABSTRACT REPORT OF THE SEVENTEENTH ANNUAL MEETING, HELD IN THE NEW WILLARD HOTEL, WASHINGTON, D.C., APRIL 29 AND 30, 1902.

(Concluded from No. 20, p. 526.)

##### FIRST DAY.—AFTERNOON SESSION.

MEETING was called to order by the president, DR. WILSON, at 2.30 P.M.

##### A CASE OF HODGKIN'S DISEASE WITH RECURRENT FEVER.

DR. H. F. VICKERY presented this case. The patient, a girl, age nineteen, had a pseudoleukemia with chronic relapsing fever. She was under observation seventy-eight days, presenting febrile periods of from six to eight days, with afebrile intervals of about the same length. There was no distinct evidence of tuberculosis and no reaction to tuberculin. The case terminated fatally after a short period of coma and no autopsy was obtained.

In discussion, DR. STARR referred to the paper on this subject published last year by Dr. Musser, but said that he believed the condition described has not yet been generally recognized by the profession. He reported a case occurring in a patient thirty-six years of age, who had twice been operated upon for enlarged glands in the neck; the first time the glands were believed to be tubercular, but those examined after the second examination showed no such lesions. The patient was suffering from febrile attacks lasting from seven to ten days, with a temperature of from

101° to 104°, and non-febrile intervals of from ten to forty days. Believing the case to be one of Epstein's disease and out of his line of practice, Dr. Starr retired from the consultation and the patient afterward came under the care of Dr. Kinnicutt, who reported further upon this case.

DR. KINNICUTT stated that under his observation the patient had passed through three periods of hyperpyrexia, and that at the present time the glands in the neck and axilla were again enlarged, and the spleen and liver were large, hard and irregular.

DR. MUSSER thought that it is not yet proven that tuberculosis is not the cause of this disease, and did not consider the tuberculin test a sufficient means of determination. Unless inoculation was done he thought it not quite fair to put tuberculosis aside as a possible cause.

#### SPLENIC ANEMIA AND ITS VARIETIES.

DR. WILLIAM OSLER read this paper. He discussed the general question of splenic anemias, but paid particular attention to one group of cases which he thought could be separated from the general class as a distinct type. The particular features of this group are (1) the chronicity of the anemia and splenic enlargement; (2) the absence of any enlargement of the lymph glands; (3) the blood changes are those of chloro-anemia, the red cells in some cases being above 4,000,000, while the hemoglobin is as low as 30%, and in some of the cases there is an exceedingly low leucocytic count; (4) pigmentation of the skin is sometimes a characteristic feature, being mottled in some cases and in others resembling argyria; (5) in the late stages the liver is involved and cirrhosis has been found post-mortem. Dr. Osler thought that this group, with the symptoms referred to, was quite distinct from the cases of pernicious anemia with enlarged spleen, from certain cases of cirrhosis of the liver, particularly syphilitic forms, and from Hodgkin's disease. The name of splenic anemia was used simply for the want of a better one. Treatment of these cases is not very satisfactory. There may be improvement for a time and the red cells increase in number, but the hemoglobin remains low. The nature of the disease is unknown. Whether due to the spleen or not is unsettled, but some cases have recovered after removal of the spleen. With the aid of other members of the association Dr. Osler had collected forty-two cases of this character.

DR. MUSSER, in discussion, reported two cases of this character, but did not believe they should be considered as a separate disease.

DR. BILLINGS reported two cases, one of which followed a severe hemorrhage.

DR. RICHARD C. CABOT said that he had seen eight cases that followed the type presented by Dr. Osler, but he was not convinced that these cases should be grouped under a separate special heading.

DR. STYLES of the Agricultural Department asked if any of these cases had been subjected to

intestinal examinations to exclude the presence of the strongyloides or the *uncinaria Am.*, both of which have been found in cases of anemia with enlarged spleen.

#### A CASE OF ALBUMOSURIA ASSOCIATED WITH PERNICIOUS ANEMIA.

DR. H. F. VICKERY reported this case. The patient was a man, age forty-seven, who had passed through the general course of a progressive pernicious anemia and had albumosuria. There were no symptoms or external evidences of bone disease. Death occurred rather suddenly, and post-mortem was refused.

In discussion DR. JACOBI asked whether he understood the gentleman to mean that albuminuria should in most cases draw attention to the condition of the bones. He had seen it a number of times in pernicious anemia, and thought it not uncommon in all the grave anemias, but did not consider it due to bone disease.

DR. VICKERY replied that from his reading on the subject he had gained the impression that the most common cause of albumosuria was multiple myeloma of the bones.

#### A REPORT OF THE CASES OF THERMIC FEVER TREATED AT THE PENNSYLVANIA HOSPITAL IN THE SUMMER OF 1901.

DR. M. J. LEWIS made this report.

There were ninety-one cases of thermic fever seen at the Pennsylvania Hospital during the hot weather of July, 1901, which showed a temperature of 100° F. and over. Nearly all these cases came in during the hours between 11 A.M. and 5 P.M., a majority between 3 and 5 P.M., showing the effect of fatigue and long exposure. There were thirty-one females and sixty males. The temperature of the patients varied from 100° to 113°, no patient with a temperature of under 106° dying and no case with a temperature of 111 or more recovering. The cases with very high temperatures usually showed convulsions with retraction of the head. Examinations of the urine showed nothing special beyond the presence of slight amounts of albumin and sometimes casts. Blood examinations were made in seventeen cases, but with such varying results that it was impossible to draw any valuable conclusions. Milder cases were treated with rest in a cool portion of the ward, the application of an ice cap and stimulants. The more severe cases were treated in a large open tent containing two large electric fans and movable bathtubs. In a few cases the hose was employed to direct a stream of water from a distance over the patient's body. Rubbing the body with ice seemed to be easier and more satisfactory than the use of the tub. The advisability of bleeding as a routine practice was discountenanced and the intravenous injection of normal saline solution strongly endorsed.

In discussion DRs. BILLINGS, MUSSER and PACKARD all related their experiences during the past summer and advocated the use of saline injections.

## FIRST DAY.—EVENING SESSION.

The evening session was held in the large hall of the Cosmos Club, and was presided over by Dr. JAMES A. STEWART, the vice-president.

In the absence of Drs. Dock and Warthin, Dr. FLEXNER presented their

## LANTERN SLIDE DEMONSTRATION OF THE HEMOLYMPH GLANDS.

He referred briefly to the work done on this subject by Gibbs, Robertson, Clarkson and others, and described the beginning of Dr. Warthin's work. He took the first eighty autopsies available at the University of Michigan and searched for these glands. In about the first half of this number he only studied the structures about the spinal column, the kidney and the mesentery, but in the next group he searched also in the mediastinum and the neck. He found them extremely numerous, but difficult to distinguish from ordinary lymph glands because after death the blood leaves them to a great extent. He then studied them in the lower animals and found them regularly in cattle and sheep. He estimates that in the human subject they bear about the relation of one to ten as compared to ordinary lymph glands. Dr. Flexner believed that the most valuable part of his work, however, was to be found in the consideration of the histological structure of these glands. He separates them into two classes, one following the general type of the spleen, and for the other the bone marrow might be taken as the type. They all contain structures similar to the ordinary lymph glands with the additional features peculiarly their own. The trabecular spaces were filled with blood and throughout the whole of the gland there is a reticulum containing spaces lined with spindle cells and filled with blood. The glandular areas resemble the Malpighian bodies of the spleen, except that only very rarely can a vessel be found comparable to the branches of the central splenic artery. He was not able to find evidences of blood formation in these glands, but on the contrary found evidences of blood destruction. In the marrow type he found in addition to these peculiar appearances the presence of fat globules or spaces from which fat had been absorbed. He thinks they have nothing to do with blood formation under normal conditions, but that under pathological conditions they may act quite vigorously to assist in the formation of blood. (The lantern was used to show some very beautiful specimens of these glands.)

Dr. C. S. BOND exhibited lantern slides showing the presence of mitosis in the circulating blood.

Dr. FRANK BILLINGS gave a demonstration of sections showing the anguillula aceti obtained from a specimen of urine.

Dr. JAMES EWING exhibited some slides showing the blood changes in some smallpox cases. He had been studying particularly the development of the so-called vaccine bodies. He was inclined to think these bodies are always the result of the fragmentation of red corpuscles.

## SECOND DAY.—MORNING SESSION.

Meeting was called to order by the president, Dr. WILSON, at ten o'clock.

The first paper presented was that by Dr. RICHARD C. CABOT on

## THE PROGNOSIS OF PLEURISY WITH SEROUS EFFUSION.

Dr. Cabot had carefully sought out the 300 patients treated for serous pleurisy at the Massachusetts General Hospital during two decades. He succeeded in finding either by letter or a personal visit 152 of these patients, who had been discharged, apparently recovered. Considering their conditions when treated and their progress after dismissal from the hospital he concluded: (1) That 80% of the cases of uncomplicated serous pleurisy are in good health after five years or more (more than half of his cases had been followed more than ten years); (2) 90% are apparently in full health at the end of from two to five years, that is, the pleurisy has no immediate connection with any other affection; (3) 15% of the cases have sooner or later developed tuberculosis, but in only 3% has this manifested itself within two years of the date of pleural effusion; (4) the type of tuberculosis was as a rule mild and of slow course; nevertheless a very rapid form of tuberculosis may develop many years after the pleurisy. Of those who develop tuberculosis, more than two-thirds presented tuberculous family histories.

His figures tended to prove that whether pleurisy means tuberculosis or not, the outlook is bright, provided no family history of tuberculosis clouds it. If pleurisy means tuberculosis, it is a very mild form and usually yields to proper treatment.

Dr. OSLER expressed the thanks of the association to Dr. Cabot for his great labor in securing such statistics, and said that they proved that pleurisy with effusion is not such a grave matter as it has always been considered.

Dr. HARRIS of Manchester, England, took part in the discussion, and stated that the practice in England was based upon figures much more unfavorable than these. Life insurance companies there, as a rule, declined to accept any applicant who has had pleurisy within five years. He thought these rules were probably too strict, and that Dr. Cabot's figures would cause a reconsideration of the prognosis in this disease.

Dr. JACOBI stated in support of Dr. Cabot's figures the fact that it is so very common when examining healthy patients, or patients who complain of some other trouble, to find the evidences of an old pleurisy.

## A CLINICAL STUDY OF ONE HUNDRED AND THIRTY-FIVE CASES OF EMPYEMA BASED UPON THE BACTERIOLOGICAL FINDINGS IN THE EXUDATE.

Dr. CHARLES F. WITHINGTON read this paper. The author found that while empyema may be caused by manifold infections within and without

the chest, in the majority of cases it is the result of pneumonia. Some cases certainly recover without operation, but it is difficult to determine in advance which these will be. The particular organism present is a less cogent factor in determining the need of operation than the fever, prostration, chills, quantity of pus present and the tendency to refill after aspiration. The great difficulty in securing healing in operative cases is in the bringing of opposite pleural surfaces into permanent contact.

DR. OSLER asked whether the author had found any great increase in the number of cases of pyemia following pneumonia during the past five years. It was reported to be so by Dr. White of Guy's Hospital, and Dr. Osler had had the same experience at the Hopkins.

DR. WITHINGTON stated that his experience had been the same; that there appears to be a great increase, and that his books showed a marked increase during the last two years.

#### SPONTANEOUS NON-TUBERCULOUS PNEUMOTHORAX.

DR. M. H. FUSSELL presented this paper. The definition given was: "A pneumothorax occurring suddenly in healthy individuals, without the cause being discoverable by physical examination or by the history of the case, and in which there is no formation of liquid." He reported in detail the histories of two cases and reviewed the literature of the subject. He finds that aspiration is a certain and safe means of relief and should be resorted to in severe or prolonged attacks. He believes this form of pneumothorax to be benign, since all but one of the reported cases have recovered.

DR. KINNICUTT reported a similar case, which made a good recovery after aspiration. In this case he could find no evidence of a lesion, either tuberculous or traumatic.

DR. COHEN had seen one case, but was not sure that he could exclude tuberculosis.

DR. F. C. SHATTUCK believed that in most of these cases there is probably a latent tuberculosis, and did not believe the absence of any physical signs of tuberculosis or the patient's recovery were sufficient to exclude its possible presence.

DR. JANEWAY remarked that he had seen several of these cases, and considered it a difficult problem to determine the etiological factor.

DR. PEABODY reported one case in which tuberculosis had been determined, and he believed it to be the likely cause in most cases.

DR. OSLER reported a case in which he had used the tuberculin test, but secured no reaction. He also called attention to the disproportionate signs in the early stages, that is, that there may be a very full chest, which is still very easily flattened.

DR. BILLINGS reported a case which had caused some dispute among consultants, the diagnosis resting between spontaneous pneumothorax and a hernia of the diaphragm — a point sometimes very difficult to determine.

#### SOME PULSATATIONS IN THE CHEST OTHER THAN ANEURISMAL.

DR. A. R. EDWARDS read this paper. This consisted in the report of a case of pernicious anemia in which there was a diffuse expansile pulsation in the chest and upper abdomen, and a second case in which there was a sarcoma of the lungs with pulsation. The first case presented many symptoms of aneurism, but autopsy examination failed to disclose any anatomical explanation for these symptoms.

DR. LAFLEURE remarked in discussion that within the past two months he had had a similar experience. The case was one of secondary anemia, and the phenomena those usual for aneurism. But the autopsy showed an ulceration of the stomach which had not been previously recognized.

#### HEALED ULCERATIVE ENDOCARDITIS.

DR. J. B. HERRICK read this paper. He stated that we might, *a priori*, expect occasional recovery in ulcerative endocarditis, and that a review of the literature shows that such occasional recoveries do occur. Post-mortem findings also indicate the possibility of healing of the valvular lesion, and he reported clinical histories, together with the description of some autopsy specimens from other cases which seemed to confirm these views. He thought it important to make bacteriological blood examinations in these cases, since it would enable one to make a more careful prognosis and perhaps to secure better treatment.

In discussion Dr. Thayer reported a case, the symptoms of which justified the diagnosis of malignant endocarditis, and yet the patient recovered.

DR. KINNICUTT reported a somewhat similar case and Dr. JANEWAY added another.

DR. SHATTUCK said that he had seen two cases of ulcerative endocarditis recover, one under the use of antistreptococcus serum.

#### THE CONDITION OF THE HEART IN PREGNANCY.

DR. ALFRED STENGEL presented this paper. A demonstration of diagrams was given to show that the supposed hypertrophy of the heart was in most instances due simply to the dislocation of the apex. He thought the murmur so frequently heard in the later months is due to distention of the right heart and the conus arteriosus. He could find no change in the blood pressure before and immediately after delivery.

#### A CASE OF PANCREATIC LITHIASIS, WITH RECOVERY OF THE CHARACTERISTIC CALCULI FROM THE STOOLS, FOLLOWED BY AN ATTACK OF COLIC LITHIASIS A YEAR LATER, WITH THE PASSAGE OF CHARACTERISTIC BILIARY CALCULI.

DR. F. P. KINNICUTT reported this case. The history of this case is pretty well condensed in the title of this paper. Only six cases have been recorded in which either a positive diagnosis of pancreatic lithiasis was made, or such a patho-

logical process was suspected during life. The diagnosis of occlusion of the pancreatic ducts is difficult from the clinical symptoms, inasmuch as none of the subjective symptoms are characteristic, and the pain differs neither in kind nor location from that of colic lithiasis. The only decisive evidence is the recovery of the characteristic concretions from the stools, and this is exceedingly rare.

DR. JANEWAY said that he had seen a case of this kind with another physician, and the only way in which the diagnosis could have been made was by the chemical examination of the calculus, which, however, even to the naked-eye examination, looked different from the ordinary biliary calculus.

#### A FURTHER CONTRIBUTION TO THE SUBJECT OF VASOMOTOR ATAXIA.

DR. S. SOLIS COHEN contributed this paper. The author called attention to the condition of essential instability of the controlling apparatus of the vasomotor nervous system as a large factor in the defective reaction of the individual toward environmental changes, so that persons of the type described exhibit upon slight excitation, physical, chemical or psychic, certain phenomena which in other persons require causes of greater moment. These phenomena depend upon irregular and sometimes widely distributed contractions and dilatations of the capillaries and smaller blood vessels, and may be divided into three classes: (1) Those dependent upon excessive relaxation, or paresis of the vessels; (2) those dependent upon excessive constrictions of the vessels; (3) those in which phenomena of the two opposite groups are commingled, and this group is the more common. Graves' disease presents an extreme type of the first group, with paresis of cardiac inhibition. Its exciting causes are various and its toxico-pathologic mechanism undetermined. Raynaud's disease presents an excessive type of vascular constriction, and of it the same may be said concerning the causes and mechanism. Between these two extremes are many varieties differing much in severity and locality of symptoms: Simple urticaria; angioneurotic edema; migraine of the spastic type and migraine of the paretic type; anomalous eruptions of various kinds; drug idiosyncrasies; hay fever, and other more or less closely related phenomena. As definite exciting causes and definite toxico-pathological mechanisms are determined, definite nosological groups may be separated, and certain syndromes, like those of Graves and of Raynaud made into diagnostic entities. Over and above these remain many vague and ill-defined conditions arising in response to any one of a number of different stimuli, among which temperature, weather, toxins and emotion are most prominent. Essential vasomotor ataxia is usually a congenital condition, affecting in different ways several members of one family. At times it seems to be acquired in sequence to disease or accident.

#### INTESTINAL HEMORRHAGE; ITS RELATION TO DUODENAL ULCER.

DR. HENRY JACKSON read this paper. He reported the histories of several cases in which there had been symptoms suggestive of impending death from the immediate effects of profuse hemorrhage, and which illustrated well the difficulties of diagnosis and the determination of the location of the hemorrhage. He found that large hemorrhages, either from the stomach or bowel, are more likely to be dependent upon ulcer of the stomach or some other pathologic lesion than upon ulcer of the duodenum, but perforation is more common in ulcer of the duodenum than in ulcer of the stomach.

#### SECOND DAY.—AFTERNOON SESSION.

#### THE PROGNOSIS AND TREATMENT OF TUBERCULOUS PERITONITIS.

DR. F. C. SHATTUCK read this paper. He presented an analysis of ninety-eight cases of tubercular peritonitis treated in the Massachusetts General Hospital between 1889 and 1900, with special reference to the treatment. This was divided into purely medical treatment—tapping for the relief of effusion and surgical measures. Treatment by surgical means seemed to secure better results than by purely medical remedies.

#### SOME CLINICAL MANIFESTATIONS OF HEPATIC CIRRHOSIS IN THE LIGHT OF EIGHTY AUTOPSIES.

DR. G. G. SEARS read this paper. Persistent jaundice and hemorrhage from the digestive tract seldom occurred until the connective tissue formation had well advanced. Hemorrhage was found to be almost invariably due to some gross lesion which in most cases was an esophageal varix. Ascites was also a late symptom, and its early appearance was usually due to other conditions than simple portal obstruction. Degenerative changes in the heart and probably in the vascular system were contributing factors. Continuous fever was never found except with complications. No evidence was found to show that the course of the disease is not always progressive. Operative treatment is indicated in a very small percentage of cases, and it is doubtful whether it is any more effective than early and persistent tapping.

#### CLINICAL MANIFESTATIONS OF THE EARLY STAGE OF CIRRHOSIS OF THE LIVER.

DR. FRANK BILLINGS presented this paper. He presented an elaborate consideration of this subject, with the presentation of cases to illustrate the points brought out, but a comprehensive abstract of the paper is scarcely possible. It should be read in full.

#### EXPERIMENTAL GLYCOSURIA FROM ADRENALIN CHLORIDE, AND ITS RELATION TO OTHER FORMS OF GLYCOSURIA DEPENDENT ON THE ACTION OF REDUCING SUBSTANCES ON THE CELLS OF THE PANCREAS.

DR. C. A. HERTER presented this paper. In this communication evidence was brought forth



to show that many and probably most forms of glycosuria and diabetes are due to the action of substances or conditions which interfere with normal oxidation in the cells of the pancreas. When adrenalin is brought in contact in unaltered form with the cells of the pancreas, a transient glycosuria results, associated with an increase in the glucose of the blood. This experimental glycosuria is most pronounced when the adrenalin is painted on the pancreas, and it was shown that similar applications to other organs does not produce glycosuria. Extended experimental inquiry brought to light the striking fact that substances possessing strong reducing power are capable of inducing glycosuria when applied directly to the pancreas.

The bearing of these facts upon various clinical matters relative to human glycosuria were discussed.

### Recent Literature.

*The Accessory Sinuses of the Nose. Their Surgical Anatomy and the Diagnosis and Treatment of their Inflammatory Affections.* By A. LOGAN TURNER, M.D., F.R.C.S., Surgeon for Diseases of the Ear and Throat, Deaconess Hospital, Edinburgh. With 40 plates and 81 figures. New York; Longmans, Green & Co. 1902.

This is a very attractive book to anyone who is interested in the subject of the title. It contains 200 pages, well and clearly printed, with many excellent anatomical plates. The first 50 pages are given to the anatomy of the sinuses and the nasal chambers. This is in every way good, clear and concise. The second 50 pages are devoted to the comparative anatomy of the frontal sinuses in human crania, a subject which the author has investigated at length, and which is taken up with a detail out of proportion to the other subjects in the book. Then follows an excellent chapter on transillumination, another subject of special research by the author. As explained in the preface, essays on these subjects form the basis from which the rest of the book has grown. The chapter on etiology and pathology, and the last, on treatment, are good but too short, especially on the subject of the ethmoid cells. The chapter on diagnosis is a simple review of the methods commonly used. As a whole the book is eminently satisfactory as a manual on the accessory sinuses, not overburdened with references and discussion, but giving judiciously all important points.

*The International Medical Annual. A Year-book of Treatment and Practitioners' Index.* By many contributors. New York and Chicago: E. B. Treat & Co. 1902.

Another edition of this well-known medical annual is before us, to which thirty-six writers have contributed. It preserves both the form and approximately the size that it has had for a number of years, and certainly fills a useful place

in detailing the more recent advances in a wide field of medical practice. The illustrations are well executed, on special paper when necessary. In general, we cordially recommend the book to our readers, as we have done in preceding years.

*Quain's Dictionary of Medicine.* By Various Writers. Third edition. Largely rewritten and revised throughout. Edited by H. MONTAGUE MURRAY, M.D., F.R.C.P., assisted by JOHN HAROLD, M.B., B.Ch., B.A.O., and W. CECIL BOSANQUET, M.A., M.D., M.R.C.P. New York: D. Appleton & Co. 1902.

This third edition of "Quain's Dictionary of Medicine" is a bulky volume of 1,892 pages. The object in preparing this new edition is to produce a book which shall serve as a reliable and readily available work of reference for the practitioner and student of medicine. The plan of the book as originally outlined by Sir. Richard Quain has been preserved, of laying stress upon the diagnosis and treatment of disease, including a discussion of pathology and etiology. Certain articles appearing in former editions have been omitted and many new ones added. In general it may be said that the editors and contributors have clearly made every effort to produce a concise, accurate book relating to the broad field of medicine and surgery. The illustrations are for the most part entirely adequate, though not particularly numerous. Fourteen full-page plates in colors add to the attractiveness and usefulness of the book. The list of contributors, containing as it does many of the best known names in the profession in England, is a sufficient guarantee of the accuracy of the subject matter. We can unhesitatingly recommend this valuable work, which, though far less complete than "Buck's Handbook of the Medical Sciences," now appearing, has the accompanying advantage of less bulk. The publishers have done their work well.

*Manual of Childbed Nursing with Notes on Infant Feeding.* By CHARLES JEWETT, A.M., M.D., Sc.D., Professor of Obstetrics and Diseases of Women in the Long Island College Hospital. Fifth edition, revised and enlarged. New York: E. B. Treat & Co. 1902.

This small manual of 85 pages on obstetric nursing was originally prepared for use in connection with the author's lectures to his own nurses, and was afterwards adapted and published for general use. The book is an excellent one for its size, and in its use it should be remembered that it was not intended as a textbook, but as an aid to the nurse in remembering the more important teachings of her hospital training, and the plan of the author in putting the text into condensed and concise paragraphs has been adopted with success with that end in view.

The author ventures the hope that the book may be of service to mothers as well as nurses, a position with which we must disagree, as the less the average mother knows about the processes and technique of confinement work, the better it is for her peace of mind.

THE BOSTON  
Medical and Surgical Journal.

THURSDAY, MAY 22, 1902.

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THE YELLOW FEVER INSTITUTE.

WE are in receipt of the first bulletins on the organization and progress of the Yellow Fever Institute, published from the United States Marine Hospital Service under the direction of Surgeon-General Walter Wyman. These bulletins are extremely interesting reading, from various points of view. In the first place, it must be a gratification to all physicians to feel that so deep an interest and such admirable work is being done by the official arms of the government in investigating the cause and spread of disease. In the second place, we are convinced that work undertaken in this manner and published abroad will not only be of the greatest value in the elucidation of the problems of disease, but will also tend to attract more and more young medical men of brilliant attainments to the service of the government. The object of the organization of this institute is to stimulate the spread of scientific investigation among officers of the corps and to secure the co-operation of all interested in the solution of the important problems of disease, in this instance, of yellow fever. The first meeting of the executive board was held Oct. 11, 1901, when, without dissenting voice, it was agreed that it was a matter of vital importance to investigate thoroughly all theories as to the origin and spread and methods of treatment of yellow fever. Invitations for membership were sent to various men prominent in bacteriological, pathological and clinical lines of work, with the result that the institute now numbers among its members men of the first standing in the profession, including many outside, as well as within, the ranks of the service. The various bulletins before us represent individual work on the subject of yellow fever in its various aspects. The question is con-

sidered from an historical point of view, and the appearance of the disease in various countries of the world, in Europe as well as in America, is discussed at considerable length. An experimental research on mosquitoes in baggage constitutes the sixth bulletin, and the occurrence of yellow fever and its quarantine management at Marseilles, France, concludes the pamphlet. We have no doubt that this work so auspiciously begun will grow to proportions which it is difficult now to estimate, and that most valuable information regarding this disease and, we hope later, of other allied disorders, may result.

ANNUAL REPORT OF THE PAUPER INSTITUTIONS' TRUSTEES.

THIS city document is each year attaining a greater and greater importance to the medical profession. We have frequently before commented on the fact that out of an almshouse a hospital in the best sense of the term is gradually being evolved at Long Island. We have also alluded to the fact that this hospital provides for a certain class of patients who otherwise have practically no refuge, namely, the chronically sick of the city. A perusal of this fifth report of the trustees gives one an idea of how much has been accomplished in raising the standard of the entire institution, and particularly of its hospital department. In the course of their discussion of the present situation, the trustees remark that the greatest and most striking change is in the growth of the hospital department; that, whereas formerly the city maintained an almshouse to which a small hospital was attached, the requirements of the hospital now render it the most important feature of the Long Island Institution. The absolute need of such a hospital has long been apparent to those who have looked beneath the surface. Not only from the point of view of the sick who are sufficiently unfortunate to be afflicted with a chronic form of disease, but also from the broader point of view of medical study and teaching, it is apparent that such a hospital is absolutely demanded if the best work in many of the most subtle problems of medicine is to be accomplished. This opportunity the Long Island Hospital now certainly in a measure offers. Its disadvantages are manifest: it is difficult of access; it is closely associated in the popular mind with pauperism; it is only slowly gaining the recognition which it deserves, both from the community and from the profession at large. We are very sure, however, that the failure of adequate recognition is becoming a thing of the past and that the future will see even a fuller development of the hospital than is at present the case.

We note with gratification that the trustees, influenced possibly in a measure by the visiting staff, are seriously considering the possibility of removing the stigma of pauperism which attaches to the inmates of the hospital by changing its name and separating it more distinctly from the almshouse department. The justice of such action must be unquestioned, and it would certainly redound to the credit of the city if such a change could be made without accompanying drawbacks. We beg leave to direct the attention of our readers to the report of which we have been speaking, as an instance of the development of a much needed type of hospital in this community.

#### INDUSTRIAL SCHOOL FOR CRIPPLED AND DEFORMED CHILDREN.

LIKE many institutions which are doing a large amount of good without much ostentation the Industrial School for Crippled Children in Boston finds itself in need of funds adequately to carry on its work. The object of this school is certainly a most worthy one. It aims to give a certain amount of preliminary education in primary and grammar school studies, as well as in certain industrial branches, to those who, through the misfortune of disease leading to deformity, are unable to take their places with other children. The school at present has not sufficient accommodations, with pupils numbering fifty-five and with a waiting list which is almost as large. The institution is broad in the dispensation of its charity. It is open to all crippled children regardless of race, color or religious belief. It is said that in spite of the inadequacy of the present building on Newbury Street, the pupils progress marvelously in their studies. They are apparently quick to learn, and, cut off as they are from many of the ordinary amusements of childhood, they naturally take a still deeper interest in their studies. It is hoped by those interested in the school that enough money may be raised for a new building which will not only be adequate to the present needs, but will permit of an enlargement of the school work in the future. It is estimated that a building suitable for one hundred pupils may be erected at a cost of \$100,000. We have no doubt that this amount of money will be forthcoming, for it has certainly been shown that this work, with its many drawbacks and discouragements, is one which should be very much further developed. Such children are practical outcasts from society, and when they reach adult life it is altogether desirable that they should have some means of independent support. Experience has already justified the hope that this may be accomplished in large measure.

#### MEETING OF THE AMERICAN LARYNGOLOGICAL ASSOCIATION AND PEDIATRIC SOCIETY.

WE are glad to make note of the fact that this year the American Laryngological Association and the American Pediatric Society will hold their annual meetings in Boston. It is probable that as the years go by this city will become a more and more popular place for these annual gatherings of medical men. With the new Medical Library Building, with the prospective buildings of the Harvard Medical School, together with the fact that Boston is not apt to be overwarm in the early spring and summer, the city should become a popular centre for this purpose. The fellows of the two associations will no doubt meet with a cordial welcome not only, we hope, from those particularly interested in the branches of medicine under discussion, but also from the profession at large, who are cordially invited to attend the various meetings. The programs, naturally, are somewhat technical in character, but, nevertheless, contain many papers which are always of interest to practitioners in other lines. One of the sessions of the Laryngological Association is to be held at the Harvard Medical School, where papers on general matters regarding the development of the tonsils and anatomical points relating to the face and the bones of the nose are to be given by Drs. Minot, Dwight and Lothrop of the Harvard Medical School. We wish the associations every success in their Boston meetings.

#### MEDICAL NOTES.

THE CAMPAIGN AGAINST MOSQUITOES IN NEW JERSEY.—It is reported that the governor of New Jersey has assigned \$1,000 from the State Emergency Fund to Prof. John B. Smith, the State entomologist, for the purpose of beginning a campaign against mosquitoes. A considerable area will be covered and other experts will be brought into the work, particularly with relation to the propagation of malaria, and also to a study of the vertebrates which feed upon mosquitoes.

COMPLIMENTARY DINNER TO SURGEON-GENERAL STERNBERG.—A committee composed of twenty-six prominent physicians has tendered a dinner to Surgeon-General Sternberg in recognition of his long-continued, varied and important scientific and professional labors and of his high personal character. The dinner will be held at New York on June 13, 1902.

SMALLPOX IN CHICAGO.—Ten out of the 19 new cases of smallpox discovered in Chicago last week were among negroes, and since the first of the year this factor of the population, numbering

only 1.3% of the total, has furnished 85% of all cases. The colored pastors, physicians, lawyers and other influential leaders of the race, having been made acquainted with these facts, are taking steps to secure general vaccination and to promote sanitation among their people, in order that this stigma may be removed.

**AN EPIDEMIC OF SMALLPOX.**—An epidemic of smallpox among the 2,000 patients in the Long Island State Hospital for the Insane at Kings Park, L. I., is reported.—*American Medicine*.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, May 21, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 27, scarlatina 22, measles 109, typhoid fever 13, smallpox 38.

**AN ENLARGEMENT OF THE LYNN (MASS.) HOSPITAL.**—It is proposed to add to the Lynn hospital by a building of brick about 83 feet in length and 37 feet in width. This new wing of the hospital will be two stories in height and provided with various modern conveniences. The upper story will be used for private patients. This addition is to be built with funds secured by private subscription, and it is hoped that \$50,000 may be raised for the purpose. The hospital facilities in Lynn for some time have been inadequate to meet the demands made upon them.

**THE MOSQUITO QUESTION IN BROOKLINE, MASS.**—Dr. H. Lincoln Chase, agent of the Brookline Board of Health, plans to attempt the extermination of mosquitoes in Brookline. Economy is urged, and from the report at hand a very small force will be available for this important work, which it is hoped may be carried out in spite of an apparent lack of co-operation on the part of the town government.

**ADDITIONS TO NEWTON (MASS.) HOSPITAL.**—Two additions to the Newton (Mass.) hospital were formally opened May 16. These were the new north pavilion of the contagious ward and the new Thayer ward for men. Both buildings are of one story and built of fireproof red brick. One of these buildings takes the place of the Thayer ward which was destroyed by fire a year ago.

**A CENTENARIAN.**—Jarvis B. Bardwell, one of the oldest men in the State, has died at his home in Shelburne Falls at the reputed age of 100 years.

#### NEW YORK.

**MORTALITY STATISTICS.**—In the quarterly report of the Bureau of Records, New York Health Department, for the three months ending March 31, 1902, which has just been issued, it is stated that the

comparative mildness of the periodic visitation of influenza during the first quarter of the present year resulted in 609 fewer deaths, attributed directly to this cause, than in the corresponding quarter of 1901, and, judging from past experience, a corresponding decrease in the number of deaths from diseases of the respiratory tract was to be looked for. There were, however, 344 more deaths from pneumonia and acute bronchitis during the quarter just passed, this increase being explainable by an epidemic of measles, commencing in the early part of December and reaching its height in March, which caused 349 deaths in this quarter, as against 63 deaths from measles in the corresponding quarter of last year. The increased mortality from pneumonia and acute bronchitis following in the train of this outbreak of measles was confined entirely to deaths of children under five years of age. Apropos of this, there were 6,228 deaths under five years during the first quarter of 1902, and 5,169 deaths under five years during the first quarter of 1901, a difference of over 1,000 deaths. It is gratifying to note that there were 262 fewer deaths from pulmonary tuberculosis, as compared with the corresponding quarter of last year. Another noteworthy fact is that the deaths from cancer are lower by 8% than in the corresponding quarter of 1901, making the first break in the long line of continually increasing mortality from this disease. During the first quarters of the years 1898 to 1902 the figures in this disease have been as follows: 1898, 447 deaths; 1899, 496; 1900, 592; 1901, 612; 1902, 565.

**MEETING OF AMERICAN THERAPEUTIC SOCIETY.**—The annual meeting of the American Therapeutic Society was held at the New York Academy of Medicine on May 13, 14 and 15. Prominent features of the proceedings were symposia on "Valvular Diseases of the Heart" and on the "Treatment of Pulmonary Tuberculosis," and a series of reports on "Recent Advance in Special Therapeutics," by eminent specialists in the various departments of medicine and surgery from different cities. On the evening of May 13 the president, Dr. Reynold W. Wilcox of New York, entertained the society at a reception and supper at the Metropolitan Club, and on the evening following the annual dinner was held at the Waldorf-Astoria. The following officers were elected: President, Dr. T. E. Satterthwaite, New York; First Vice-President, Dr. H. H. Barker, Washington; Second Vice-President, Dr. J. N. Hall, Denver; Third Vice-President, Dr. O. T. Osborne, New Haven; Secretary, Dr. N. P. Barnes, Washington; Recorder, Dr. W. N. Sprigg, Washington; Treasurer, Dr. J. S. McLain, Washington; Curator, Dr. Geo. C. Ober, Washington.

**DAMAGES FOR DEATH OF A CHILD.**—On the trial of an action brought against a certain contracting company by George Terhune, to recover damages for negligently causing the death of his six-year-old daughter, the jury gave the plaintiff a verdict for \$600. A decision of Justice Leventritt, before whom the case was tried, which granted a motion of plaintiff's counsel to set aside the verdict as inadequate, has now been reversed by the Appellate Division of the New York Supreme Court. It is held that under the statute giving a cause of action to the administrator or executor of a person whose death is caused through the alleged negligence of another, it is within the province of the jury to award what they think is a just compensation. Justice Ingraham, in giving the opinion of the court, said that whether the child's continued life would have been a pecuniary advantage to her father, over and above the outlay necessary for her support, was most problematical, and it could not with any certainty be said that her death caused a pecuniary loss to her father.

**HEALTH REPORT FOR APRIL.**—The reports of the Health Department show that during the month of April the mortality in the city represented an annual death-rate of 19.83, against 19.76 in March, and 20.67 in April, 1901. The corrected death-rate for the month, excluding non-residents and infants under one week old, was 18.95, against 18.86 in March. Among the diseases which showed an increase in mortality were the following: The weekly average of deaths from diphtheria and croup increased from 38.75 in March to 45 in April; the weekly average from smallpox, from 9.5 to 13.25; from whooping cough, 11.75 to 12.75; from cancer, 47 to 48.5; and from diseases of the urinary system, 119 to 122. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from scarlet fever decreased from 25.5 to 23.5; from measles, 23.5 to 22; from pneumonia, 161.25 to 146.5; from phthisis, 170.5 to 158.5; and from influenza, 8 to 4.25.

**SIDEWALK EXPECTORATION A MISDEMEANOR.**—At a meeting of the Board of Health held May 15 its code was amended so as to make it a misdemeanor to spit on the sidewalks, as well as on the floors of cars, railway stations, ferry-houses and other public places. This action was taken on the recommendation of Dr. H. M. Biggs, the medical officer of the board, who stated in a letter that the action of the department taken six years ago had been productive of much good, and that there was still less excuse for spitting on the sidewalks than in the other places mentioned. A grave feature of such pollution, he said, is the inevitable transmission of the always objectionable

and dangerous material on the footwear, clothing and particularly the skirts of women, into private houses, where it is a constant menace to the welfare of the occupants, whose attempts to maintain salubrious conditions are thus rendered futile.

**RESIGNATION OF A MEDICAL STAFF.**—The entire medical staff of the Jamaica Hospital, at Jamaica, borough of Queens, consisting of nine members, has resigned because of the refusal of the women board of managers to rescind a resolution providing for a double staff, including homeopathic as well as regular physicians. About two years ago three homeopaths, the only ones in the town, were appointed on the staff, but, in consequence of the objections raised by the other members, they soon resigned. At the present time these three, reinstated in their positions, are said to be in charge of the hospital. The physicians of the old staff, after sending in their resignations, organized a Jamaica Medical Association, to be devoted to the interests of the regular profession in the town.

**MR. CHARLES M. SCHWAB AS PHILANTHROPIST.**—Mr. Charles M. Schwab, president of the United States Steel Corporation, has purchased the property known as Richmond Beach, Staten Island, for the purpose of making it a summer resort for the poor and sick children of New York. It comprises a mile of ocean beach, a fine fresh water lake, and a considerable amount of high wooded land. The buildings on the property will be altered to meet the requirements of such a charity, and it is expected that from 1,500 to 2,000 children can be cared for daily. They will probably be conveyed to the beach on a large steamer, and will thus have the additional benefit and pleasure of a fine salt water sail.

**BEQUEST TO LONG ISLAND COLLEGE HOSPITAL.**—Among the bequests of Henry W. Maxwell, a well-known financier and philanthropist of Brooklyn, who died on May 11, is \$20,000 to the Long Island College Hospital. Some time ago he gave \$60,000 to the hospital for the erection and equipment of an operating theatre, and a like sum for a nurses' dormitory in connection with the institution. He also liberally endowed Maxwell House in Brooklyn, and was said to donate \$300,000 annually to charitable purposes. At the time of his death he was president of the Long Island College Hospital and treasurer of the Polhemus Clinic.

**APPOINTMENT OF POLICE SURGEONS.**—Drs. Frank R. Oastler and Charles A. Elsberg have been appointed police surgeons. In the recent civil service examination for the two positions vacant in the board of surgeons the name of Dr. Oastler was at the head of a list of a very large number of applicants.


## Miscellany.

## PHYSICAL CULTURE IN ITALY.

THE Royal Commission, consisting of Professor Angelo Mosso, chairman, Deputy Luigi Credaro, and Commendatore Gennaro, appointed by the Italian government some time ago to investigate the means of improving physical training in Italy, has finished the first part of its labors. In their report the commissioners unanimously recommend that the Minister of Education should order an inquiry into the existing conditions of physical education in Italy. They have drawn up a schedule of questions to be sent by the minister to heads of institutions, asking why effect has not been given to the De Sanctis law of 1878, which made gymnastics compulsory. The commissioners also call the attention of the minister to the fact that the law of 1878 no longer corresponds to the standard required by the progress of medicine, hygiene and social pedagogy. They lay stress on the need for new legislation, as in the old law there is no provision for the physical education of the people. They urge that Italy should follow the example of other civilized nations, in which universities are the most active centres for the development of physical education. They propose that every pupil should have a book in which his physical condition at different periods may be recorded. This is necessary in view of the ordinance making gymnastic compulsory, and as a means of prophylaxis against infectious diseases, and obtaining a better knowledge of the physical development in youth. The commissioners further urge that the government should exercise a more active supervision over physical education in private schools, and suggest that strict rules should be established as to meals and other things connected with the maintenance of health in schools.—*British Medical Journal*.

## METEOROLOGICAL RECORD

For the week ending May 10, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather		Rainfall in inches.		
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.			
S...4	30.20	48	52	44	75	90	82	N	E	S	E	12	7	F.	R.	T.
M...5	29.98	58	69	47	91	72	82	S	W	N	Z	15	7	O.	C.	14
T...6	30.14	56	63	49	59	50	54	S	N	S	S	7	15	C.	O.	.05
W...7	29.79	61	73	49	88	52	70	S	N	W	12	15	O.	O.		
T...8	29.84	62	72	53	56	46	51	N	W	W	13	8	C.	C.		
F...9	29.70	52	65	40	58	49	54	W	N	W	21	22	C.	C.		T.
S...10	30.05	42	51	34	54	42	48	W	N	W	24	14	C.	C.		
	29.96	64	45		63											1.9

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † indicates trace of rainfall.

☞ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 10, 1902.

CITIES.	Population Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Cerebro spinal meningitis.	
New York..	3,665,352	1,344	419	25.59	15.62	3.27	1.04	.22	
Chicago..	1,852,828	549	152	17.17	17.84	.91	1.09	.18	
Philadelphia..	1,349,624	456	106	22.14	12.27	1.53	3.29		
St. Louis..	603,717	—	—	—	—	—	—	—	
Baltimore..	625,330	188	51	21.47	12.23	1.06	1.06		
Cleveland..	411,826	—	—	—	—	—	—	—	
Buffalo..	375,742	—	—	—	—	—	—	—	
Pittsburg..	341,401	134	49	22.38	19.39	—	—	—	
Cincinnati..	332,032	—	—	—	—	—	—	—	
Milwaukee..	304,975	—	—	—	—	—	—	—	
Washington..	289,537	—	—	—	—	—	—	—	
Providence..	185,870	61	13	26.34	9.84	1.64	—	1.64	
Boston..	588,736	206	49	23.76	17.94	.97	1.94	—	
Worcester..	127,337	33	10	9.09	24.24	—	—	3.03	
Fall River..	111,872	35	18	14.28	17.14	2.86	—	—	
Lowell..	99,574	30	9	3.33	20.00	—	—	—	
Cambridge..	96,334	19	6	31.56	10.52	5.28	—	—	
Lynn..	71,144	22	3	22.72	13.63	9.09	—	—	
Lawrence..	67,275	21	10	28.57	14.28	4.76	4.76	—	
Springfield..	66,854	89	9	20.52	10.28	5.12	—	—	
Somerville..	65,882	19	2	15.78	18.78	—	—	5.28	
New Bedford..	65,574	29	12	13.79	13.79	—	3.44	3.44	
Holyoke..	48,065	14	5	7.14	7.14	—	—	—	
Brookton..	43,208	12	—	33.33	—	—	—	—	
Haverhill..	40,392	17	12	35.28	23.52	5.88	—	—	
Salem..	36,567	14	2	14.28	21.42	7.14	7.14	—	
Newton..	36,336	14	1	14.28	—	—	—	—	
Malden..	35,390	7	—	28.60	14.30	—	—	—	
Chelsea..	35,264	13	3	15.40	—	7.70	7.70	—	
Fitchburg..	33,848	—	—	—	—	—	—	—	
Taunton..	32,759	8	1	37.50	25.00	12.50	—	—	
Everett..	27,114	5	—	—	—	—	—	—	
North Adams..	26,583	5	—	20.00	40.00	—	—	—	
Gloucester..	26,121	5	2	20.00	—	—	—	—	
Quincy..	25,307	7	1	57.20	—	—	—	14.30	
Waltham..	24,612	8	1	12.50	—	—	12.50	—	
Pittsfield..	22,311	8	—	25.00	25.00	—	—	—	
Brookline..	21,679	—	—	—	—	—	—	—	
Chicopee..	20,390	8	4	—	37.50	—	—	—	
Medford..	20,014	5	2	20.00	20.00	—	—	—	
Newburyport..	14,478	4	2	—	25.00	—	—	—	
Westfield..	13,384	2	1	50.00	—	—	—	50.00	
Attleboro..	13,038	3	1	—	33.33	—	—	—	
Adams..	12,846	—	—	—	—	—	—	—	
Milford..	12,813	—	—	—	—	—	—	—	
Framingham..	12,516	—	—	—	—	—	—	—	
Peabody..	12,109	3	—	—	—	—	—	—	
Revere..	11,957	—	—	—	—	—	—	—	
Gardner..	11,894	4	—	—	—	—	—	—	
Weymouth..	11,544	3	—	33.33	33.33	—	—	—	
Southbridge..	11,337	2	—	—	—	—	—	—	
Watertown..	10,838	3	2	—	66.67	—	—	—	
Plymouth..	10,960	—	—	—	—	—	—	—	
	10,336	—	—	—	—	—	—	—	

Deaths reported 3,393; under five years of age, 965; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 763, acute lung diseases 522, consumption 344, scarlet fever 68, erysipelas 16, typhoid fever 46, whooping cough 28, cerebrospinal meningitis 11, smallpox 19, measles 37, diarrheal diseases 67.

From whooping cough, New York 13, Chicago 3, Philadelphia 7, Baltimore 2, Pittsburg 2, Gloucester 1. From measles, New York 20, Chicago 1, Philadelphia 5, Baltimore 1, Pittsburg 6, Boston 1, Haverhill 3. From erysipelas, New York 7, Chicago 2, Philadelphia 2, Pittsburg 2, Boston 2, Quincy 1. From smallpox New York 9, Chicago 1, Philadelphia 2, Pittsburg 1, Boston 6.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,003, for the week ending April 26, the death-rate was 17.0. Deaths reported 4,851; acute diseases of the respiratory organs (London) 315, whooping cough 158, diphtheria 74, measles 132, smallpox 55, scarlet fever 43.

The death-rate ranged from 6.9 in Hornsey to 33.3 in Merthyr Tydfil; London 17.4, West Ham 14.0, Croydon 7.2, Brighton 17.2, Portsmouth 14.1, Southampton 11.1, Bristol 15.7, Birmingham 19.0, Leicester 13.3, Nottingham 16.5, Birkenhead 11.6, Liverpool 21.1, Manchester 19.7, Salford 21.4, Bradford 16.5, Leeds 18.5, Sheffield 18.6, Hull 17.4, Newcastle-on-Tyne 20.5, Cardiff 15.4.



**OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MAY 8, 1902.**

GASSAWAY, J. M., surgeon. Leave of absence for three days under paragraph 179 of the regulations.

STONER, G. W., surgeon. Leave of absence for one day, May 2, 1902, under paragraph 179 of the regulations.

WARDIN, EUGENE, surgeon. Leave of absence for seven days from May 2, 1902, under paragraph 179 of the regulations.

CARRINGTON, P. M., surgeon. Bureau order of April 30, 1902, detailing Surgeon Carrington to represent the service at American Congress of Tuberculosis, revoked. May 7, 1902.

GUIERAS, G. M., passed assistant surgeon. Relieved from duty at Matanzas, Cuba, and directed to proceed to Philadelphia, Pa., and report to medical officer in command for duty. May 5, 1902.

WERTENBAKER, C. P., passed assistant surgeon. Leave of absence for three days from May 3, 1902, under paragraph 179 of the regulations.

ROSENAU, M. J., passed assistant surgeon. To proceed to Wilmington, Cape Fear Quarantine (Southport), and Beaufort, N. C., as inspector; and inspector of unserviceable property at Wilmington and Cape Fear. May 2, 1902.

VON EZDORF, R. H., assistant surgeon. Upon being relieved by Acting Assistant Surgeon A. B. McDowell, to proceed to Matanzas, Cuba, relieving Passed Assistant Surgeon G. M. Guieras. May 5, 1902.

FRICKS, L. D., assistant surgeon. Relieved from duty at Chicago, Ill., and directed to proceed to Boston, Mass., and report to medical officer in command for duty and assignment to quarters, relieving Assistant Surgeon John McMullen. May 7, 1902.

VOGEL, C. W., assistant surgeon. Leave of absence for fifteen days granted Assistant Surgeon Vogel by Bureau letter of April 18, 1902, revoked. May 3, 1902. Relieved from duty at San Francisco, Cal., and directed to proceed to Dutch Harbor, Alaska, and assume command of the service. May 3, 1902.

LLOYD, B. J., assistant surgeon. Relieved from duty at San Francisco Quarantine, and directed to proceed to Nome, Alaska, for special temporary duty, assuming command of the service. May 3, 1902.

BORFORD, HUGH, acting assistant surgeon. Granted leave of absence for two weeks from May 5. May 7, 1902.

FOSTER, A. D., acting assistant surgeon. Granted leave of absence for fourteen days from May 17. May 6, 1902.

MCCONNELL, E. F., acting assistant surgeon. Relieved from duty at Havana, Cuba, and directed to proceed to Nuevas, Cuba, relieving Acting Assistant Surgeon O. W. Stone. May 5, 1902.

McDOWELL, A. B., acting assistant surgeon. Relieved from duty at Havana, Cuba, and directed to proceed to Santiago, Cuba, relieving Assistant Surgeon R. H. von Ezdorf. May 5, 1902.

STONE, O. W., acting assistant surgeon. Upon being relieved by Acting Assistant Surgeon E. F. McConnell to proceed to his home and await annulment of appointment as acting assistant surgeon. May 7, 1902.

WALKER, AGNES, acting assistant surgeon. Granted leave of absence for fourteen days from May 17. May 6, 1902.

WALKLEY, W. S., acting assistant surgeon. Granted leave of absence for seven days from May 7. May 2, 1902.

HUME, LEA, sanitary inspector. Granted leave of absence for thirty days from May 1. May 3, 1902.

MASON, M. R., senior pharmacist. Relieved from duty at San Francisco, Cal., and directed to proceed to Dutch Harbor, Alaska, and report to Assistant Surgeon C. W. Vogel for duty. May 3, 1902.

HOLT, F. M., junior pharmacist. Granted leave of absence for thirty days from May 1. May 2, 1902.

SPANGLER, L. C., junior pharmacist. Granted leave of absence for fifteen days from May 10. May 2, 1902.

**BOARDS CONVENED.**

Board convened to meet at the marine hospital, Baltimore, Md., May 3, 1902, for the physical examination of certain officers of the Revenue Cutter Service. Detail for the Board: Surgeon H. R. Carter, chairman; Passed Assistant Surgeon J. A. Nydegger, recorder.

Board convened to meet at the marine hospital, New Orleans, La., for the physical examination of such officers of the Revenue Cutter Service as may present themselves, May 12, 1902. Detail for the Board: Passed Assistant Surgeon C. P. Wertenbaker, chairman; Assistant Surgeon J. W. Schereschewsky, recorder.

Board convened to meet at the marine hospital, Boston, Mass., May 12, 1902, for the physical examination of such

officers of the Revenue Cutter Service as may present themselves. Detail for the Board: Surgeon Fairfax Irwin, chairman; Assistant Surgeon John McMullen, recorder.

**SOCIETY NOTICES.**

AMERICAN PEDIATRIC SOCIETY.—The American Pediatric Society will hold its annual meeting in Boston on May 26, 27 and 28, 1902.

BOSTON SOCIETY FOR MEDICAL IMPROVEMENT.—A special meeting of the society will be held at Sprague Hall, Medical Library, on Friday evening, May 23, at 8.15 p.m., to consider the report of the committee on the formation of an academy of medicine.

ARTHUR K. STONE, M.D., Secretary,  
543 Boylston Street.

MAINE MEDICAL ASSOCIATION.—The fiftieth annual meeting will be held in Common Council Chamber, City Building, Portland, Me., Wednesday, Thursday and Friday, June 4, 5 and 6, 1902.

AMERICAN LARYNGOLOGICAL, RHINOLOGICAL AND OTOLOGICAL SOCIETY.—The eighth annual meeting of the American Laryngological, Rhinological and Otolological Society will be held in Washington, D. C., June 2, 3 and 4, 1902.

AMERICAN GYNECOLOGICAL SOCIETY.—The twenty-seventh annual meeting of the American Gynecological Society will be held at Atlantic City, New Jersey, May 27, 28 and 29, 1902.

**RECENT DEATHS.**

DR. JOHN G. ELLIOTT, assistant physician at the Hudson River State Hospital for the Insane at Poughkeepsie, N. Y., died suddenly of cardiac disease on May 12, at the age of thirty-one. He was a native of England and a graduate of the University of Buffalo Medical School.

DR. LYMAN BEECHER TODD of Lexington, Ky., is dead at the age of seventy. He was a cousin of President Lincoln's wife and was in attendance at the bedside when Lincoln died. Dr. Todd was one of the best known men in Kentucky, having been closely associated with President Lincoln for many years.

DR. MARIE E. ZAKRZEWSKA, one of the pioneer women physicians of Boston and founder of the New England Hospital for Women and Children, died last week at her home in Jamaica Plain, Mass. Dr. Zakrzeska in her earlier life was associated with the other pioneers in medicine among women, Drs. Elizabeth and Emily Blackwell of New York. From that time on her life had been active in the cause of medical education for women, and she met with a hearty response from various men and women of Boston in her efforts to found the New England Hospital for Women and Children. She took an extreme interest in her profession and all that pertained thereto, and devoted the working part of her life of about seventy-three years to the development of hospital facilities for women and to her medical practice, which was at one time large.

**BOOKS AND PAMPHLETS RECEIVED.**

An Introduction to Physiology. By William Townsend Porter, M.D. Part IV. Physiological Optics. Cambridge: The University Press. 1902.

A Laboratory Guide in Elementary Bacteriology. By William Dodge Frost, M.S. Illustrated. Second revised edition. Madison, Wis. 1902.

Ophthalmic Myology. A Systematic Treatise on the Ocular Muscles. By G. C. Savage, M.D. Illustrated. Nashville, Tenn.: Published by the Author. 1902.

Transverse Supra-Pubic Division of the Skin in Performing Abdominal Section. By Henry J. Kreutzmann, M.D., San Francisco, Cal. Reprint. 1901.

Superheated Compressed Air in the Therapeutics of Chronic Catarrhal Otitis Media. By George W. Hopkins, M.D., Cleveland, O. Illustrated. Reprint. 1902.

The Diagnosis of Surgical Diseases. By Dr. E. Albert. Authorized translation from the eighth enlarged and revised edition by Robert T. Frank, A.M., M.D. Illustrated. New York: D. Appleton & Co. 1902.

Progressive Medicine. A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M.D., assisted by H. R. M. Landis, M.D. Volume I, March, 1902. Philadelphia and New York: Lea Brothers & Co. 1902.

## Original Articles.

## AN ABSTRACT OF SOME OF THE PREVAILING OPINIONS ON THE PERIODS OF INCUBATION, OBSERVATION AND ISOLATION OF SOME OF THE INFECTIOUS DISEASES.\*

BY ELBRIDGE G. CUTLER, M.D., BOSTON.

(Concluded from No. 21, p. 536.)

## MEASLES.

*Incubation.*—Ten days, as a rule, elapse between the reception of the poison into the system and the manifestation of the earliest febrile and catarrhal symptoms, or 14 days between the infection and the appearance of the rash. These are Panum's estimates, based on his observations in a newly infected community of the Faroe Islands in 1848.

Hebra successfully inoculated with the nasal mucus, and found the symptoms showed themselves in eight days, the difference in time representing the effect of the resistance offered to the invading virus by the skin and mucous membrane. The stage of incubation is shortened after inoculation.

Moore gives the following experiences of March 26, 1876: A married lady, age 21, fell ill of measles. Her parlor maid had sickened with the same disease 10 days previously, that is, on March 17. At 3 P. M. on the 26th inst. she felt thirsty, chilly and fatigued, and her appetite failed. The rash appeared on the face of the patient on the 30th (fifth day). The fastigium, 103.4° F., was reached at 1 P. M. of April 1 (seventh day), when the eyes were suffused. Defervescence was complete on April 3. In this case the duration of the latent period was almost certainly 10 days.

In the spring of 1877 both measles and scarlatina were prevalent in Dublin, and it was difficult effectually to isolate the incoming cases in the epidemic wards of the general hospitals. In two instances, at the Meath Hospital, scarlatina patients unfortunately contracted measles while convalescing. In both cases the symptoms of measles were detected on the eleventh day after exposure, that is, on the eleventh day after admission to the hospital.

Owing to the fact that measles is infectious from the outset, and that the first case in a household may be readily mistaken for a common cold, the attempt to arrest its spread by adopting preventive measures, especially isolation, is practically futile. Hence the difficulty of arresting an outbreak of this disease in a family or community. Should an individual have been exposed to the infection of measles, at least 16 days' quarantine

will be necessary before he can be pronounced safe.

A patient who has passed through an attack of measles should not be declared free from infection until at least three, and preferably four, weeks have elapsed from the first symptoms. It will be remembered that the stage of desquamation generally lasts until the eighteenth day (Moore).

Williams<sup>30</sup> says the interval between exposure and the prodromal symptoms is usually 10 days, but may be as short as five and perhaps four. On the other hand it may be as long as 14 days, in which case the rash would not appear until the seventeenth or eighteenth or even nineteenth day after infection. Though the period of about 14 days from exposure to the appearance of the rash is that met with in the vast majority of cases, it is important to recognize that it may be four or five days longer, since such exceptional cases must be taken into account in estimating the period for which a susceptible person who has been exposed to infection should be isolated from other persons who have not had the disease. An interval of a full fortnight must be allowed, and at the end of that time the person must be free from fever, catarrh and photophobia before it can be said that he has escaped infection.

Griffiths<sup>31</sup> says the majority of observations agree in fixing the incubation period at 10 to 12 days.

Hochsinger<sup>32</sup> gives 10 days as the period of incubation.

Crandall<sup>33</sup> says it may range from 9 to 21 days. Among 144 cases Holt found it to be between 11 and 14 days in 66%. Crandall has seen repeatedly the initial symptoms appear 12 days after exposure. He thinks 12 days is the most common period of incubation. Except in complicated cases, in which the catarrhal symptoms are prolonged, the period of infection is not over 28 days.

Williams<sup>34</sup> says the duration of the interval between exposure to the infection and the appearance of the rash is usually 14 days. Almost as often it is a day more or a day less. The pre-eruptive, or prodromal, stage is of uncertain duration. It may be one day or may extend to five days. The incubation period of measles is therefore two or three days; as a rule, less than the interval above mentioned, and probably in most cases it is 11 or 12 days. It is believed to have a tendency to be short in cases where the subsequent attack is severe, with high and protracted pyrexia; and, on the other hand, a long period of incubation is said to be followed usually by a mild attack. When produced by inoculation, the period of incubation is said to be seven or eight days.

*Observation.*—The period of observation recommended by the Report of the London Clinical

\* The accompanying abstract was prepared for the committee of the Boston Society of Medical Improvement appointed to consider the "Periods of Incubation, Observation and Isolation of certain of the Infectious Diseases," and forms the basis of their report to the society. The report was read at the meeting of the society on Jan. 20, 1902, and was accepted. The committee consisted of S. H. Durgin, M.D., Chairman; J. H. McCollom, M.D., E. G. Cutler, M.D., J. L. Morse, M.D., and R. C. Cabot, M.D.

<sup>30</sup> Allbutt's System of Medicine, 1897, II, 102.

<sup>31</sup> American System of Practical Medicine, I, 627.

<sup>32</sup> Diagnostisches Lexikon, 1894, p. 155.

<sup>33</sup> Cyclopaedia of the Diseases of Children, 1889, Supplement, v, 245.

<sup>34</sup> Twentieth Century Practice of Medicine, 1896, XIII, 374.

Society is 14 days, and at the end of that time the patient must be free from fever or catarrh.

The "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" fixes 16 days as the period of observation.

*Isolation.*—The infectiousness of measles exists from the earliest period of the developed disease. There is no notable diminution of the power of infectiousness during the whole acute stage, and there is no doubt that a patient may often be capable of conveying measles to another after convalescence has advanced far enough to allow him to go back to his usual avocations. It is well established that infection is more often spread during the prodromal period. The period of isolation should extend to three weeks at least, and the patient should be free from all desquamation and cough before being allowed to mix with susceptible children. The infective principle has a low power of maintaining itself outside of the body, and does not survive long in fomites under ordinary circumstances.

#### CHICKEN-POX.

*Incubation.*—Moore states: The stage of latency is believed to be, on an average, about as long as that of smallpox, namely, 12 days. Makuna states that it varies from 8 to 17 days. Bristowe says that in some cases it lasts exactly a week, but perhaps more commonly a fortnight. According to Thomas, it varies from 13 to 17 days; while Trousseau extends the duration to from 15 to 27 days. On the other hand, Gregory limited it to from 4 to 7 days. The discrepancy, in Dr. Hilton Fagge's opinion, arises from the fact that the length of the incubation has in general been calculated upon the very precarious basis of the interval between the dates at which different children of the same family have been successively attacked. Towards the close of this stage there is, according to Thomas, in some cases, a slight rise in temperature.

MacCombie<sup>35</sup> says that it varies from 11 to 19 days, 14 being most common. He has not seen it in less than 13 or longer than 17. If inoculated, the incubation period is stated to be 10 days.

Welch<sup>36</sup> says, when the disease breaks out in a private family or an institution for children, the time that elapses between the appearance of the eruption in the first and second cases is usually from 13 to 17 days. This may, therefore, be regarded as about the usual period of incubation, although a much shorter period has been reported by some observers.

Unger<sup>37</sup> gives the stage of incubation as from 13 to 19 days.

Williams<sup>38</sup> gives the interval between exposure to infection and the appearance of the eruption of varicella as usually 14 days; and, since prodromal symptoms are very inconstant, this must be reckoned as the usual incubation period. It may be one day less; possibly, in exceptional cases,

three days less. A period of 19 days has frequently been established. The incubation period in inoculation is said to be 10 days.

von Jürgensen<sup>39</sup> says the average period of incubation for the usual method of infection is about 13 or 14 days, with a maximum of 19 days, but accurate observations are wanting. In the inoculations by Steiner the period of incubation was eight days.

*Observation.*—The period of observation given by the "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" is 18 days.

Williams considers it safer to prolong it to 20 days.

*Isolation.*—During the period of incubation the patient, as a rule, presents no symptoms, but for a day or two before the eruption comes out there may be some malaise, and it is probable that infection may be contracted from the patient at this time. The patient continues to be infectious until convalescence is over and all scabs have become detached, especially of the scalp. Infection can probably be carried by fomites.

#### GERMAN MEASLES (ROETHELN).

*Incubation.*—J. Lewis Smith, in the epidemic of 1874 in New York, did not find the stage of incubation to be uniform. In some instances it appeared to be from 7 to 10 days, and in other instances from 18 to 22 days.

Thomas gives to this stage a duration of from two and a half to three weeks.

Moore observed in 1878 two cases, a brother and sister, the latter of whom sickened twelve days after her brother.

Williams<sup>40</sup> admits that the incubation period is not well determined, and says it is probably most often 17 or 18 days; but it may be two or three days more, or five or even, perhaps, seven days less. A person who has contracted the disease is capable of conveying the infection to others two or three days before the rash appears; that is to say, while he is himself quite free from any obvious symptoms of illness. The capability of infecting others remains during the presence of the rash, but declines rapidly, and in mild cases disappears in a week, though it may persist a little longer after more severe attacks or, perhaps, when there is much desquamation.

Griffiths<sup>41</sup> gives as an average estimate, based upon the experience of many observers, a period of from one to three weeks.

Unger, in the *Diagnostisches Lexikon* for 1895, gives the incubation period as 18 to 20 days.

Edwards<sup>42</sup> says the period is between 7 and 14 days.

Williams<sup>43</sup> says the period of incubation is, as a rule, rather longer than measles. Prodromal symptoms are not always present or are so slight as to

<sup>35</sup> Allbutt's System of Medicine, 1897, II, 179.

<sup>36</sup> American System of Practical Medicine, 1897, I, 570.

<sup>37</sup> Diagnostisches Lexikon, 1895, p. 471.

<sup>38</sup> Twentieth Century Practice of Medicine, 1898, XIII, 374.

<sup>39</sup> Nothnagel's Encyclopedia of Practical Medicine, 1902, VB, Saunders & Co., p. 291.

<sup>40</sup> Allbutt's System of Medicine, 1897, II, 118.

<sup>41</sup> American System of Practical Medicine, I, 640.

<sup>42</sup> Encyclopedia of the Diseases of Children, Supplement of 18 v, 254.

<sup>43</sup> Twentieth Century Practice of Medicine, 1898, XIII, 375.

escape observation, and it is therefore necessary to reckon the incubation period to the date of the appearance of the rash. This is given by the Clinical Society's Report as 18 days, but it may be more than two and less than three weeks without being at all exceptional. It is occasionally as short as five days. It seldom or never exceeds 21 days, although Baginsky<sup>44</sup> admits 24 days.

Tobeitz<sup>45</sup> observed 27 cases in which the incubation period could be definitely fixed, and he found this to range from 4 to 25 days, so he concludes that personal and other influences are so powerful that there is no regular period of incubation.

*Observation.*—The duration of the period of observation, according to the "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools," should be 16 days. The Clinical Society's Report is probably safer, which gives "two days more than three weeks."

German measles may be infectious for two or three days before the rash appears. It is in all cases infectious while the rash is out; but the infection declines rapidly, and in mild cases has probably ceased at the end of a week. In more severe cases it lasts longer, and risk cannot be considered as past so long as any desquamation continues.

*Isolation.*—The "Code" prescribes an isolation of two or three weeks, the exact time depending upon the nature of the attack.

#### SMALLPOX.

*Incubation.*—Moore says: Incubation begins with the reception of the virus into the system, and ends at the appearance of the earliest symptom. Its average duration is twelve days, except in cases of inoculation, when it is only eight days, or still shorter, forty-eight hours, according to Curshmann. As a rule, there are no symptoms in this stage, but towards its close the patient probably feels unwell and out of sorts—what the French aptly call "malaise."

MacCombie<sup>46</sup> says it varies between extremes of 5 days and 20 or more. Usually it is 12 days, but not infrequently 10, 11, 13, or sometimes 9. In a few exceptional cases symptoms of malaise occur from the date of reception of infection. Armstrong<sup>47</sup> has given particulars of a case in which it appeared to be 21 days.

Welch<sup>48</sup> gives it as from 10 to 12 days.

Hebra, in the *Diagnostisches Lexikon* for 1898, gives the stage of incubation as between 10 and 14 days, seldom under that time.

Williams<sup>49</sup> says the initial symptoms come on, in a large majority of cases, on the eleventh or twelfth day, and the eruption appears on the fourteenth day. An interval of ten days only between the exposure and the initial symptoms is not very uncommon; and then the eruption appears on the thirteenth day. An interval of only eight days is rare; but Eichhorst has recorded three cases,

<sup>44</sup> Lehrbuch der Kinderkrank.

<sup>45</sup> Arch. f. Kinderkrank., Bd. xxviii, H. 5, u. 6.

<sup>46</sup> Allbutt's System of Medicine, 1897, II, 187.

<sup>47</sup> Lancet, 1886, I, 715.

<sup>48</sup> American System of Practical Medicine, 1897, I, 522.

<sup>49</sup> Twentieth Century Practice of Medicine, 1898, xiii, 573.

one in a physician and two in medical students, in which the initial symptoms commenced in two of the individuals in nine days and eight hours after exposure, and in the third, nine days and four hours. So short an interval is rare, but when the disease is conveyed by inoculation, the initial symptoms appear on the eighth or ninth or, occasionally, on the seventh day. It is said the short periods are observed more often in hot countries than in temperate climates. There is some evidence that the incubation period of hemorrhagic smallpox is rather shorter than that of the discrete form of the disease. Longer intervals are rather more common. Thus periods of 13, 14 and 15 days between exposure and the initial symptoms are not very rare; and cases have occurred which appear to prove that it may be prolonged to 20 days.

Immermann<sup>50</sup> says the period of incubation is generally 10 to 13 days in variola; very rarely more, even to 15 days; more frequently less, 5 to 10 days, especially in the very severe primarily hemorrhagic cases.

*Observation.*—The Report of the Clinical Society of London gives 15 days as the period of observation, provided the individual at that time shows no signs of indisposition and presents no elevation of temperature. The "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" gives 18 days. Williams says it will be safer to put the period of observation at three weeks.

*Isolation.*—The infection can be preserved for a long period in clothes and other fomites, and in the hair of a person who has been in intimate contact with a smallpox patient. Cases are recorded in which the infection has thus been carried by nurses.

The disease is infectious from the onset of symptoms until all scabs have become detached and until all desquamation has ceased. Great care should be exercised in any case in which a suppurating discharge is left as a sequel to the disease. (Dr. Durgin has never seen any infection follow such a condition.)

#### DIPHTHERIA.

*Incubation.*—Osler<sup>51</sup> gives the period of incubation as from two to seven days, generally two days.

Wood and Fitz say it is two days or more.

Hilton Fagge and Pye-Smith<sup>52</sup> give as follows: Trousseau puts the period at from two to seven days.

Oertel puts the period at from two to five days, but he quotes cases in which it was longer.

Jenner relates a case of eight days.

Senator says that the interval may be as much as three or four weeks. Where there has been a direct transference of the poison from one person's fauces to another, the period seems to be much shorter.

<sup>50</sup> Nothnagel's Encyclopedia of Practical Medicine, W. B. Saunders & Co., 1902, p. 30.

<sup>51</sup> Practice of Medicine.

<sup>52</sup> Loc. cit.

Valleix had a pellicular deposit on the tonsil the day after he became infected with the disease, and died in forty-eight hours.

Oertel supposes that the incubation period is likely to be less prolonged during the prevalence of an epidemic, especially where the type is malignant.

Williams<sup>57</sup> gives the usual period of incubation of diphtheria of the throat or larynx as two days, and not often exceeding four days, although it really never exceeds this period, and is seldom less than two days.

**Observation.**—The "Code of Rules for the Prevention of Infectious and Contagious Diseases in Schools" gives twelve days as the period of observation, which is ample, if the infection is spread by personal intercourse, and not by other means.

The infection of diphtheria may hang about a house in carpets, beds, etc., for months or perhaps years. A person may be infected by a patient in the incubation stage during the whole of the attack, and for a period of long but uncertain duration after apparent recovery. These conclusions, based on the study of the history of cases observed clinically, are fully confirmed by bacteriology, which has shown that the specific bacillus may persist in the throat for many weeks and even for months. As a rule, where infection has been thus transmitted at a late period, after the symptoms of the disease have passed away, some unhealthy condition of the tonsils or pharynx has persisted; and all cases in which such morbid states continue after diphtheria should be regarded as possible sources of infection to susceptible children brought into intimate relations with the patient. The infection may be contracted by intimate contact with the body of a person who has died of the disease.

**Isolation.**—The period of isolation, after an attack of diphtheria which has satisfied the medical officers of school associations is not less than three weeks after convalescence is completed, provided there is no longer any form of sore throat nor any kind of discharge from the throat, nose, eyes, ears or other parts, and no albuminuria. The termination should depend on the disappearance of all local lesions and the bacillus from the throat.

#### INFLUENZA.

**Incubation.**—The period of incubation is brief, varying from a few hours to two or three days. This period is usually unattended by subjective symptoms.<sup>58</sup>

Drozda<sup>59</sup> gives the period of incubation from a few hours to one or two days.

Jennings<sup>60</sup> says the period is from one to four or five days, and many cases develop within a few hours.

<sup>57</sup> Twentieth Century Practice of Medicine, xiii, 377.

<sup>58</sup> J. C. Wilson: American System of Practical Medicine, 1897, 1, 407.

<sup>59</sup> Diagnostisches Lexikon, 1893.

<sup>60</sup> Cyclopædia of the Diseases of Children, 1899, v, 312.

Williams<sup>57</sup> says the usual period is probably two or three days. The Clinical Society's Report concludes that it varies from one day or a few hours less to four or five days, but that the usual period is three or four days.

Parsons<sup>61</sup> estimates it at two or three days. Periods as long as seven days have been reported, but during an epidemic of influenza it is exceedingly difficult to exclude the possibility of unrecognized exposure, owing to the number of ambulatory cases, and of mild attacks which the sufferers call common colds, and for which they do not undergo any period of isolation.

In the German Collective Investigation Report, some cases are recorded in which the disease originated in a family in consequence of a definite importation; and in a number of instances physicians were able to determine in their own persons how many days after they had visited their first and only case of influenza they were themselves attacked. Based on these observations, the period of incubation was decided to be from two to six days in length. Very rarely it was as short as one or two days. The longest period that has been positively determined is seventeen days.

**Observation.**—The period of observation after an exposure Williams concludes should be six or seven days.

**Isolation.**—"The patient is infectious throughout the acute attack, and may continue infectious until convalescence has advanced far enough to permit him to return to his ordinary avocations; and it is probably in this way that influenza is most generally spread. The period of isolation ought to be a week to ten days after the commencement of the disease, according to the severity of the attack. In cases complicated by pneumonia it should be extended to the end of convalescence."<sup>62</sup>

The committee have the honor to make their report in the form of the following conclusions:

#### TYPHOID FEVER.

(1) The period of incubation is most often 12 to 14 days, frequently 9 or 10 days, occasionally 8 and possibly less. In rare cases it is prolonged to 15, 18 or even 23 days.

(2) The period of observation is uncertain, and under some circumstances should extend over 28 days, namely, where the water supply cannot be changed.

(3) The period of isolation, in the ordinary acceptance of the term, should extend through the period of convalescence; and proper disinfection of the stools and urine, and possibly of the sputum, should be practised for at least a month after the symptoms have ended. (Recent observations have shown that the bacilli may persist in the urine for a much longer time, hence to ensure absolute safety the patient should be considered a possible source of danger until the bacilli have disappeared from the urine.)

<sup>61</sup> Twentieth Century Practice of Medicine, 1898, xiii, 382.

<sup>62</sup> Report on the Influenza Epidemic of 1889 and 1890, Local Government Board of England, 1891, pp. 63, et seq.

<sup>63</sup> Finkler: Twentieth Century Practice of Medicine, xv, 51.

## MUMPS.

(1) The usual period of incubation is three weeks. The shortest period is probably 14 days. The longest period known is 25 days.

(2) The period of observation should be 25 days.

(3) The period of isolation should be 28 days, and, if all glandular swelling have subsided, and there is no tenderness of the breasts or other parts of the body, the patient may be released.

## SCARLET FEVER.

(1) The period of incubation is two to three days as a rule, but it may be eight (and possibly twenty—McCollom).

(2) The period of observation should be 10 days, provided there is absence of fever and sore throat and all fomites are disinfected.

(3) The period of isolation so far as danger to others is concerned should be from the appearance of the eruption, and desquamation should have ceased, the nose and throat should be healthy, all complications should be over, and thorough disinfection of house, patient and belongings should have been done before the patient is released.

## WHOOPIING COUGH.

(1) The duration of the incubation stage is 4 to 10 days.

(2) The period of observation should be 21 days.

(3) The period of isolation should be from the commencement of the whooping or spasmodic stage, and should last till the characteristic cough has ceased.

## MEASLES.

(1) The incubation period is 11 or 12 days. It may be 10 or, possibly, shorter. On the other hand, it may be as long as 14 days.

(2) The period of observation should be 16 days.

(3) The period of isolation should last till desquamation and catarrhal symptoms have come to an end.

## CHICKEN-POX.

(1) The period of incubation is usually 14 days. It may be from 11 to 19 days.

(2) The period of observation should be 20 days.

(3) Infectiousness lasts until convalescence is over, and all scabs, especially of the scalp, have been detached. This, then, should be the period of isolation.

## GERMAN MEASLES (ROETHELN).

(1) The incubation period is 18 days usually, but it may be possibly 5 to 21 days.

(2) The period of observation should be 23 days.

(3) The isolation period should be 14 to 21 days, according to the severity of the attack.

## SMALLPOX.

(1) The stage of incubation is 11 or 12 days usually. It may be 8 days and perhaps 20 days.

(2) The period of observation should be three weeks.

(3) The patient may be released from isolation when all primary crusts have fallen off and patient's hair and surface has been thoroughly disinfected, as well as all infected articles.

## DIPHTHERIA.

(1) The period of incubation of diphtheria of the throat or larynx is usually two days. It does not often exceed four days, but occasionally reaches seven.

(2) For a single exposure the period of observation should be 12 days.

(3) The period of isolation after an attack of diphtheria should last till two consecutive negative cultures from the nose and from the throat have been obtained before release of the patient.

## INFLUENZA.

(1) The period of incubation is two or three days usually.

(2) The period of observation after exposure should be six or seven days, according to the virulence of the epidemic.

(3) The period of isolation of the sick should last till catarrhal symptoms are ended.

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J. H. MCCOLLOM,  
ELBRIDGE G. CUTLER,  
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REMARKS ON INTESTINAL OBSTRUCTION BY BANDS, FOLLOWING OPERATIONS ON THE PERITONEAL CAVITY, WITH REPORT OF CASES.<sup>1</sup>

BY F. B. LUND, M.D., BOSTON.

WHEN one considers the complicated character of the peritoneal cavity and its contents, the importance of the mobility of its contained viscera, of the lubrication afforded by the smooth, shining peritoneal covering which invests them, the irregular shape and frequent changes in size, shape and position of the intestines, and the ease with which it would seem that single coils of intestine could be forced under bands and into pockets, the rarity of intestinal obstruction by adhesions following laparotomy seems remarkable. We are all aware of the numerous laparotomies which are being performed nowadays, for appendicitis, diseases of the female pelvic organs, diseases of the gall bladder and biliary ducts, affections of the stomach, and yet the occurrence of intestinal obstruction by bands is a rarity in surgical experience.

<sup>1</sup> Read before the Norfolk South District Medical Society March 6, 1902.



Wherever the peritoneum has been incised, it heals by the deposit of fibrin, which becomes organized into granulation tissue and finally into fibrous tissue, and almost invariably the organs which are situated immediately under the abdominal wall (notably the omentum) become adherent to the incision. Adhesion of the omentum is of course a matter generally of minor importance, in fact, the omentum acts in this way as a protection to the bowel beneath by interposing itself and preventing adhesion of the bowel to the abdominal wall. If adhesion of the bowel took place it might result in kinking and obstruction, hence the importance, before the closing of laparotomy wounds, of drawing down the omentum beneath the incision, if possible, in order to cover and protect the bowels.

We know very little about the subsequent fate of the adhesions which must follow laparotomy, but observations made on reopening the abdomen indicate that in the course of time they frequently become attenuated and perhaps entirely disappear. The operations which are followed by the largest number of adhesions are naturally those done upon acute infective conditions, notably suppurative disease of the Fallopian tubes and suppurative appendicitis.

We are here dealing with conditions in which the parietal peritoneum, the peritoneum covering the pelvic organs and that of the adjacent intestines and omentum are in an inflamed condition, and frequently covered by deposits of fibrin, so that after the operation the intestines and omentum fall into the pelvis, the fibrin covering their surface becomes organized, and they become bound together by a mass of adhesions which it would seem to the inexperienced observer ought to cause obstruction of the bowels much more frequently than is actually the case. Operations, such as those done for the removal of the myomatous uterus, or for appendicitis in the interval, deal with organs covered with healthy peritoneum, and unless this membrane is unduly injured by rough or violent manipulation they ought to result in the formation of the minimum amount of post-operative adhesions. It is especially important to adopt all devices to leave the field of operation covered by smooth peritoneum, such as inversion of the appendix into the bowel, leaving a smooth peritoneal surface, with no raw stump projecting into it, or in pelvic operations folding the broad ligaments over the stumps of the amputated tubes and ovaries. Care and neatness in the technique, especially in the finishing of operations, is the duty of the surgeon, if he would avoid as far as possible post-operative complications.

Cases of incomplete removal of a septic organ, as, for instance, where the inflamed stump of a Fallopian tube is left projecting into the abdomen, result in a constantly acting focus of infection, causing the deposit of fibrin and its subsequent organization, and have resulted, in the writer's experience, in the most extensive formation of post-operative adhesions. When one infected

Fallopian tube is removed and the other, although noted to be slightly infected, is left behind, the result may be disastrous. The remaining tube keeps up a constant low-grade infection in the operative field and results in the formation of extensive obstructive adhesions in the vicinity, and finally becomes acutely inflamed and requires removal. In three cases in which the writer has removed a Fallopian tube at a second operation, which had been left behind at the first, he has encountered adhesions of the appendices epiploicæ and of the intestines to the pelvic organs which have rendered the subsequent operation extremely difficult and serious. The complete removal of all infected tissue should be carried out wherever possible, if these complications are to be avoided.

Certain organs in the abdominal cavity, notably the omentum and the appendices epiploicæ, which consist simply of connective tissue covered by peritoneum, on adhesion to the parietes or the viscera, themselves form bands which may cause strangulation of the intestines.

The frequency of strangulation by Meckel's diverticula is explained by the fact that here we have a fibrous band attached by one end to the abdominal wall and by the other to the movable intestine, affording the best possible conditions for angulation of the bowel. The coil of intestine to which it is attached may become rotated on itself and thus twisted and strangulated. This form of strangulation, caused by the twisting of a bowel which is attached at one point to a band which runs to the abdominal wall at its other end, is exemplified by Case III, reported in this paper.

The writer has observed two cases of strangulation by adhesions due to the bending over of a bowel and attachment to its own mesentery at the point where that mesentery covered an inflamed mesenteric gland. Thus the mesentery and the bowel form a ring into which another coil of intestine projects, as through the ring of a hernia.

The omentum may become adherent at several points in the abdominal wall, leaving spaces between these points through which coils of intestine may pass and become so tightly wedged that their circulation is cut off.

The appendices epiploicæ of the large intestine have been observed by the writer in some instances to be abnormally long, and he has found two of them stretched tightly across the pelvic brim and adherent at their extremities to an inflamed dermoid cyst, conditions extremely favorable to the strangulation of the bowel which might pass beneath or between them.

Dr. J. W. Elliott reported at the Suffolk District Medical Society, Surgical Section, last winter, a case of strangulation of the large intestine by the twisting around it of an inflamed adherent epiploic appendage.

Operations upon the lower part of the peritoneal cavity are naturally more likely to be the cause of internal strangulation of the bowel, because the loops of intestine gravitate into that portion of the cavity. This explains the rarity

of strangulation by adhesions after operations upon the gall bladder and stomach.

The symptoms of strangulation by adhesions are those of acute obstruction of the bowels from other causes. They are somewhat dependent upon the obstruction of the current of gas and feces in the bowel, but in greater degree upon the obstruction of the circulation of the blood in the bowel. If the intestine is not wedged beneath the band, the fecal current may at first be only partially obstructed, but the movements of the bowel to escape from beneath the obstruction which hinders its muscular motion frequently result in the wedging of more bowel through the ring and the onset of acute symptoms due to the obstruction of the circulation in the mesentery. The symptoms characteristic of such strangulation are pain of the most acute character, vomiting, general pallor and sweating of the skin, and something in the general appearance of the patient which suggests that serious trouble is present. I do not mean by that the pallor, sweating, cold, clammy skin and bright eyes surrounded by dark rings which indicate general peritonitis or septicemia, but an appearance less marked, although no less characteristic, which should indicate to the surgeon that serious trouble is present. The pain and vomiting are followed by a distention of the abdomen, which in strangulation by a band is at first local. The intestine becomes distended at first just above the seat of the constriction, so that at that time only a single coil is obstructed, and if the abdomen is not too thick and muscular the surgeon may in rare cases have an opportunity to note the distention of a single coil of intestine, followed later by general distention, with corresponding increase in the severity of the symptoms. The surgeon, however, will generally be called too late to see this symptom. My only observation of it is described in Case I in connection with this paper. Where it can be found this symptom is one of very great diagnostic importance.

Abdominal tenderness will at first be noted directly over the seat of the trouble, namely, the obstructing band. It will later become more general and will be attended by spasm of the abdominal muscles. Even this spasm of the abdominal walls is far less marked in cases of acute obstruction than in cases of general peritonitis, and may be very slight in character even where the obstruction has lasted for hours or days.

Obstruction to the passage of feces is of course complete at the point where the bowel is strangulated by the band, but this symptom may be wanting, and may be the cause of fatal delay in calling the surgeon or in operating for relief of the condition. If the intestines are fairly full at the time of the onset of the disease, enemata, which are naturally first administered, may result in the passage of a considerable amount of feces and gas from the bowel below the obstruction, but the careful observer cannot help noting that instead of relieving the symptoms and improving the general condition of the patient, no

real relief is afforded by such bowel movements. In Case II, reported in this paper, the patient had two large movements of the bowels on the third day after the onset of the symptoms and while the operator was preparing to open the abdomen. Laparotomy showed that the obstruction was high up in the small intestine, and these movements had simply resulted in the emptying of the colon. If the operator had been deceived by these movements the result would certainly have been disastrous to the patient. In Case III, reported in this paper, three movements of the bowels took place, and the abdomen was *not* generally distended on the third day of complete obstruction by a band. It therefore becomes evident that a careless observer may be easily deceived by movements of the bowels which empty the intestine only below the point of obstruction.

The vomiting which generally denotes the onset of acute obstruction may and frequently does subside when the patient is put to bed and starvation by the mouth is enforced. This cessation of vomiting also should not be interpreted as a sign that the obstruction has been permanently relieved. This also occurred in Case III of this paper, and with the bowel movements resulted in a delay of operation on the part of the surgeon, which might have cost the patient his life and which the writer would be unwilling to see repeated in his own experience. In the majority of these cases of acute obstruction the appearance of the patient will be such and the relief afforded by enemata will be so slight that the surgeon will have little doubt that there is serious mischief within the abdominal cavity, but occasionally unless he is very careful and acute in his observation he may be deceived. To the writer's mind there is no question that in cases where there is serious doubt as to whether obstruction exists the abdomen should be opened. This is the condition which existed in Case III. The patient's appearance and general condition gave so little indication that there was a serious condition present in the abdomen that it was with the greatest difficulty and with the feeling on his own part that he was perhaps unduly zealous that the writer persuaded the man to consent to operation. At the time, the patient felt so well that he was anxious to go home. The operation, as will be seen in the description of the case, resulted in the finding of a large coil of gangrenous bowel which was not resected and which recovered its circulation, contrary to the expectation of all who saw the operation. I am more and more convinced as time goes on that in cases of doubt it is far better to open the abdomen than to stand about and wait for something to happen, for if one waits even an hour or two too long the point of safety may be passed. Cases of obstruction by bands when operated upon early are among the simplest and most satisfactory which are presented to the surgeon. It is simply a matter of quickly opening the abdomen, dividing the band, watching the intestine

change from dark purple to bright red, and sewing up again. As soon as the patient comes out of the ether he is relieved of his pain, his general appearance is that of a well man, and the progress of the case is as rapid and favorable as can be imagined. When the obstruction to the circulation has not been complete, such an operation may be all that is required even after the lapse of two or three days. In cases, however, such as Case IV of this paper, where the blood supply has been absolutely shut off, necrosis may take place within a very few hours, and the operator may find the bowel so completely gangrenous that resection of the intestine is the only alternative. As the patient is suffering in a high degree from septicemia and peritoneal shock, this operation has to be done rapidly in order to give him any opportunity to recover. The emergency is one of the most serious which confronts the surgeon, and he and the patient are both fortunate if recovery ensues. An instance in which gangrene of the intestine had occurred within twenty-four hours of the onset of obstruction is reported in Case IV of this paper.

**CASE I.**—Acute obstruction by a band extending from one portion of the intestine to another, coming on three weeks after laparotomy. Operation twelve hours after the appearance of the first symptom. Operation: Division of band. Recovery.

M. O., a girl of nine years, was admitted to the City Hospital on Aug. 21, having suffered for four days from pain in left side of the abdomen and bloody stools, containing considerable pus and mucus. There was slight spasm of the muscles on the left side of the abdomen and marked tenderness and a sausage-shaped tumor was felt. In view of the probability of the presence of intussusception, an incision was made by a colleague of the writer through the outer portion of the left rectus muscle. The abdominal cavity was carefully inspected but no intussusception or other abnormality was found. After the operation the tenderness diminished and the blood disappeared from the stools. The patient was apparently having a good convalescence. On Sept. 11 at seven in the morning, three weeks after the operation, she was suddenly seized with severe abdominal pain and repeated vomiting. When I saw her at ten o'clock a single coil of intestine could be seen and felt to be distended. This coil was just above and to the right of the incision. The presence of this isolated coil seemed to the writer pathognomonic of acute obstruction by a band, but owing to the possibility of an error in observation, deemed it wiser to wait for a few hours, and try treatment by enemata. Two were given during the day without result. The vomiting ceased but the pain increased, and her general appearance became rather worse during the day. At eight o'clock in the evening, or thirteen hours after the first symptom, the patient was etherized and the writer made an incision along the inner border of the former one. On opening the abdomen, a considerable amount of bloody serum escaped. A coil of intestine about thirty inches long was found to have slipped beneath a band extending between two parts of the small intestine beneath the upper end of the wound. This bowel was dark purple in color and some of its mesenteric veins contained thrombi. The peritoneum over the coil had not lost its lustre. This band was divided, and on its relief there was a free escape of flatus from it into the contracted portion of the bowel below the constriction. The congested coil rapidly became light red in color and gave evidence that the trouble had been relieved. The operation, which had taken less than ten minutes, was completed by a suture of the abdominal wound by through-and-through sutures of

silkworm gut. The next morning the patient felt as well as ever, and was discharged from the hospital seventeen days after the operation in first-rate condition.

**CASE II.**—Obstruction of upper part of the small intestine by a band eight weeks after an operation for acute appendicitis. Gangrene of a narrow ring of bowel beneath the obstructing band. Operation: Division of band, inversion of gangrenous portion of bowel. Recovery.

H. D., a school boy twelve years old, was admitted to the City Hospital on May 25, 1901, on the second day of an acute attack of appendicitis. An operation was performed by Dr. J. T. Bottomley which showed pus free in the peritoneal cavity, and the intestine in the neighborhood of the appendix injected and covered with flakes of fibrin. The appendix, which was adherent to the abdominal wall, was ligated and removed. A piece of gangrenous omentum was also ligated and removed. The whole cavity was washed out with salt solution. Numerous fresh adhesions were present and were easily broken up. The pelvis was drained by a glass tube and wicks of iodoform gauze. On the third day after the operation consolidation was noted at the base of the right lung. The patient, however, gradually recovered and was discharged on June 22, the wound having entirely healed. Two days after discharge, on June 24, he was brought back to the hospital on account of a sharp attack of epigastric pain after an indiscretion in diet, followed by vomiting, slight fever and pyrosis.

Physical examination showed the abdomen to be soft and not tender. The attack was attributed to indigestion, and three days later the patient was discharged. On July 13, about eight weeks after the first operation, the boy was sent into the country for a week. While on the train he was attacked with pain and vomiting, which continued until July 16, when he was seen by the writer in consultation with Dr. F. E. Tilden of North Easton. His bowels had not moved during that time, though cathartics and enemata were administered. When the writer saw him his temperature was 101°, face flushed, covered with clammy sweat, and eyes bright and surrounded by dark rings. The abdomen was distended. There was tenderness at the umbilicus and above and to the left of it. The diagnosis of acute obstruction by a band was made, and while we were preparing for the operation two copious movements of the bowels took place, resulting in some diminution of the distention.

The patient was etherized and the abdominal wall incised above and to the left of the former incision, over the tenderest point. A tough fibrous band was found extending from the free border of the intestine to an inflamed mesenteric gland close to the upper end of the appendix incision. This band had so strangulated a loop of bowel at the point where it passed beneath it as to cause gangrene of a narrow strip encircling the bowel. After division of the band this gangrenous strip was enfolded into the bowel so as to be entirely buried by healthy peritoneum. It was recognized that this measure might slightly narrow the lumen of the bowel, but it was deemed the quickest and safest way of proceeding, as the boy's condition was so poor that it was not thought wise to do anything further. After washing out the abdominal cavity the wound was sutured with interrupted through-and-through silkworm gut sutures.

The patient made an uninterrupted recovery. In November, 1901, he was brought to the writer's office, looking well and in good flesh. He had had an occasional attack of colic which may have been due to slight constriction at the point where the bowel had been inverted. He was instructed to return to the hospital in case these attacks persisted, but has not been heard from since.

**CASE III.** This case has been previously reported, but chiefly with reference to ulcer of the stomach. The second operation for obstruction by a band has, however, not been previously reported in detail, and

certain features of it seem to the writer to make it worth while to mention.

W. L., twenty-nine years of age, married, was operated on by the writer on June 20, 1899, for perforation of a gastric ulcer. General peritonitis was found at time of operation, and after suture of the ulcer and lavage of the abdominal cavity, performed through a median incision above the umbilicus, a second incision was made below the umbilicus in order to more thoroughly drain the pelvis, which contained pus and fibrin.

On Feb. 12, 1901, one year and seven months after the first operation, while at work at the bottom of a manhole, he was overcome by gas so that he became unconscious. He was lifted to the surface and on recovering consciousness vomited several times. He was taken home, where he again vomited and was attacked by pain in the epigastrium. He sent for a physician, who administered morphin, which relieved the pain. There was no more vomiting on that day or the next. But on Feb. 14 he had another attack of pain which was also relieved by morphin. At this time he was brought to the hospital, and when seen by the writer had a normal pulse and temperature, and looked perfectly well. The abdomen was soft, not distended, and not anywhere tender. He had a large ventral hernia in the seat of the upper incision. He was put to bed and given no food by the mouth. During the next day his condition remained the same and his bowels moved freely as the result of enemata.

On Feb. 16, four days after the first attack of pain, he began to have hiccoughs, and there was slight tenderness in the upper part of the abdomen, causing apparently slight bulging of the ventral hernia. When he was told that operation was advisable he refused, and could with great difficulty be persuaded to have his abdomen opened. He finally yielded, however, and the writer made an incision through the old scar. The stomach was found to be normal and not dilated, but in the pyloric region was adherent to the under surface of the liver. On lifting the great omentum a coil of jejunum was found, greatly distended, with edematous walls, dark purple in color, and filling about one-half of the abdominal cavity. The incision was extended downward and a tough, fibrous band was found attached to the border of the jejunum at one end and at the other to the inner surface of the small scar made at the previous operation to drain the pelvis. This first band, however, was not the cause of the constriction, but several inches below it was found another similar to it adherent to the scar at the same point, completely obstructing the bowel. These bands were divided, but no relief of the obstruction resulted. No gas was passed and the bowel did not collapse. The man had suddenly taken to vomiting a dark-brown fluid, and his condition became so poor that it was thought that resection of the bowel was impracticable. The table was tipped so as to lower his head and elevate the pelvis, and thus vomiting into the trachea was prevented. It was thought that incising and emptying the gut might relieve its distention so that it could take care of itself, therefore the coil was hung out over the side of the patient and incised, allowing a large amount of feces and gas to escape. A still larger amount escaped from the mouth. The incision in the bowel was quickly closed and a dark-blue patch which was thought to be gangrenous was folded in. The abdominal wound was quickly sutured with a continuous suture of silkworm gut, the completion of the operation being made difficult by constant vomiting. On coming out of the ether, the vomiting ceased and the patient made an uninterrupted recovery. He was discharged from the hospital on March 13.

This case is especially interesting as showing, in the first place, the slight and deceptive character of the symptoms which may indicate a severe abdominal lesion. The man's recovery was extremely fortunate, but under similar conditions it could not be counted on. The opening and emp-

tying of the gut the writer hardly expected would be successful, considering the grave nature of the conditions present.

CASE IV. Intestinal obstruction by a band six months after operation for peritoneal cysts. Rapid gangrene of the intestine. Operation twenty-four hours after the first symptom. Resection of gangrenous bowel. Recovery.

D. M., single, twenty-seven years of age, domestic, was operated on Jan. 3, 1901, by Dr. J. C. Munro in Newburyport. He found and broke up several peritoneal cysts which seemed to be formed by adhesions and had no definite lining membrane. They were probably connected, however, with an inflammatory condition of both tubes and ovaries, which was found at operation. The right tube was removed. The patient made a good recovery and was discharged, relieved, on Jan. 30, and immediately went to work.

On June 5, 1901, while running for a car, she had a sharp attack of pain in the abdomen, which increased in severity as time went on. When seen by Dr. R. C. Hurd of Newburyport she complained only of pain. The pulse and temperature were normal. She was given calomel, which was vomited. The bowels did not move. In the morning she was given an ounce of tincture of rhubarb. At this time a tumor appeared in the lower part of the abdomen (localized distention of the bowel) which was very sensitive. Manual palpation gave a sensation of fluctuation through the tumor, which seemed to be more on the left than on the right. In the afternoon the pulse rose to 120, temperature to 101°. The tumor increased in size and the bowels did not respond to a high enemata of salts, glycerin and turpentine.

At eight o'clock in the evening, about thirty hours after the first symptom, the writer saw her in consultation with Dr. A. B. Brown and Dr. Hurd, at the Newburyport Hospital, and opened the abdomen, making an incision three inches long, just to the left of the scar of the former incision. On opening the peritoneum a large amount of bloody serum escaped. Several considerably distended coils of intestine presented, some of which were markedly injected. There were numerous bands attaching the intestine to the parietal peritoneum and pelvic wall. On following up the distended intestine and enlarging the incision, a coil was found which was absolutely black in color. Its mesenteric veins were thrombosed and its peritoneum had lost its lustre. A tough band was found compressing the mesentery of this coil, and was divided. Numerous other small bands in other parts of the abdomen were also broken down. The condition of the constricted coil did not improve on removal of the band, but the patient's condition was so poor that it was thought best to incise and empty the bowel, as was done in the preceding case reported in this paper. It was, therefore, incised, and much gas and some fluid feces allowed to escape. On attempting to close the incision the bowel was found to be so necrotic that the sutures would not hold. There was, therefore, no alternative except resection of the gangrenous coil. Clamps were applied above and below this portion and the black bowel quickly cut away. The bleeding from the mesentery was stopped by rapid over-and-over sutures of coarse silk. Two single sutures brought the mesenteric borders together and the ends of the bowel were united by four coarse sutures of silk, passing through all the coats, these being placed on the mesenteric border, on the free border and half-way between on either side. The peritoneal coat of the bowel was quickly closed by a single layer of interrupted right-angled suture of fine silk. As soon as the suture was found to be tight, the abdominal cavity was thoroughly washed out and the sutured bowel returned to it and the wound was closed with through-and-through sutures of silkworm gut.

In spite of stimulation the patient was in collapse and almost died on the table. She was hastily put to bed and given a quart of hot salt solution under the breasts, besides copious enemata. She responded to

this somewhat, but her condition was poor all night, and at four in the morning she had another fainting spell, when the above measures were repeated. From this time on she made a rapid and uneventful recovery. The bowels moved four days after the operation. The patient was discharged from the hospital on July 18. Since her discharge she has gone back to work and feels perfectly well.

The portion of bowel removed measured twenty-one inches in length. This case illustrates the fact that the most radical type of operation may be necessary in these cases, even where a comparatively short time—twenty-four to thirty hours—has elapsed since the first symptom. It also illustrates the fact that the most serious and numerous adhesions are formed in cases of pelvic disease where only one inflamed tube is removed.

### Clinical Department.

#### PAPILLOMA OF BLADDER, WITH OPERATION; REPORT OF A CASE.<sup>1</sup>

BY G. H. WASHBURN, M.D., BOSTON.

TUMORS of the bladder are usually benign. They are usually not very extensive. Judging from the literature on the subject, suprapubic operations on the female bladder are rather rare. As this case offered several unusual features, it seemed as though it would be of interest.

The patient, Mrs. M., came under my care at St. Elizabeth's Hospital, Dr. Johnson's service, which I was taking to give him a rest. She was forty-nine years old: had been married twenty-eight years and had five children. Her oldest child was twenty-five and the youngest nine years old. Menstruation began at 14; came regularly every four weeks, lasting four days, and soiling twelve napkins; no pain. Catamenia ceased entirely two years previously.

Family history negative as far as any bearing on this ailment. Since birth of last child nine years ago has had more or less trouble with her bladder. Has been at the Providence Homeopathic Hospital for several weeks every year for the past five years. Was given some sort of local treatment with irrigations. Finally, in April, 1900, had a tumor removed from the bladder through the vagina. Since that time has had no control over urine, which has come away constantly through the vagina. In June of the same year, the growth having returned, the bladder was cauterized through the vaginal opening.

She entered St. Elizabeth's Hospital the latter part of December, 1900. She then complained of "straining pains" in region of bladder and urethra. These had been present more or less for three years and had not been relieved by the operations. This spasmodic pain was always started up by the slightest straining in moving the bowels, and lasted several minutes, doubling her up with the pain. Complains, too, of passing blood with the urine.

<sup>1</sup> Read before the Obstetrical Society of Boston, Feb. 18, 1902.

Bowels are constipated since operation. Appetite and digestion good; sleeps well. Bladder does not seem to dribble so constantly while lying down.

Examination shows a well-developed, well-nourished woman of medium size. Rather large, fat abdomen. There was an opening between vagina and bladder about one to one and one-half inches long. Urine escaped through this, containing flakes of lymph and some calcareous matter; urethra normal. Urine: cloudy, alkaline; specific gravity, 1,016; albumin,  $\frac{1}{2}$  %. Thick, mucous, stringy sediment, containing triple phosphates; large numbers of squamous epithelial cells, mostly in clumps; few spindle cells; some blood and pus. Bladder was irrigated twice a day, and urotropin given three times a day.

I first saw her about ten days later, when her symptoms had improved a little. Urine was about the same, except specific gravity, 1,025, and no blood. Examination of the bladder through the fistulous opening showed a large, soft, flattened mass covering the anterior bladder wall. Posteriorly the healthy bladder wall could not be reached by the examining finger. One of the extremely painful spasmodic attacks followed the examination. The principal characteristic of this was a violent straining, such as you see in the last stages of labor. A radical operation was advised. The patient wished to go home for a few weeks before having it done. She returned to the hospital Feb. 8. Urine about the same as at last examination, except specific gravity 1,010.

Feb. 15. After the usual preparations for abdominal operation she was etherized. Dr. Johnson very kindly assisting, the abdominal wall was incised from the symphysis halfway to the umbilicus. Just behind the symphysis the opening was carried down to the bladder, the peritoneum stripped back from the bladder, so as to expose its whole upper surface. This was very vascular, several large vessels entering. The bladder wall was seized and drawn up. An incision was made to the right of the median line so as to avoid cutting through the tumor. Within the bladder, especially from the anterior wall and extending to the left, was a papillomatous growth as large as a good-sized hen's egg. Other smaller growths of the same character were scattered all over the bladder wall. An oval piece of the bladder wall to which the large tumor was attached was cut out. The edges of the bladder were held apart by forceps, while the small scattered growths were thoroughly removed by cautery. The whole inside surface of the bladder was beautifully exposed to view and to touch in this way. There was considerable hemorrhage, especially from the cut edges of the bladder but also from its surface. Iodoform gauze was packed into the bladder and the incision in its wall was sewed up with No. 2 chromicised catgut all except a small opening in the lower part left for suprapubic drainage. A number of vessels were tied with catgut and the abdominal wall was sewed up in layers. Some silk worm gut sutures were passed through to the

peritoneum. The lower portion was of course left open for the drain from the bladder.

Patient recovered well from ether. On the second day the gauze was taken out from the bladder, and an effort made to have the abdominal wound close. The urine, however, seemed much more inclined to drain out through the abdominal opening than through the vaginal fistula. Various methods were tried to carry off all the urine from below: Gauze passed into the bladder from the vagina; catheter passed in the same way and left in; catheter through the urethra. They either would not work or caused intense pain. Patient was propped up in bed, and dressings over upper part of abdominal wound protected by rubber tissue, while dressings over lower part were frequently changed.

Feb. 22, a week after the operation, most of the sutures in abdominal wall had to be removed. There was hardly any attempt at healing. The wound gaped widely; dressed frequently with iodoform gauze.

Feb. 26. Considerable urine still escaping through abdominal opening. Bladder being irrigated right through twice a day.

March 5 showed a much more healthy looking wound, Bismuth formic iodide being used as dusting powder. Wound still gaping quite widely. A number of crusts washed out from bladder.

March 10. Healing progressing rapidly. Very little discharge; sitting up in bed. A week later patient out of bed. The incision closing in.

Progress continued steadily, so that by the first of April the incision was entirely healed. General condition was excellent. There was absolutely no discomfort in bladder region.

The woman had been in the hospital so long that she was not willing to have the vesico vaginal fistula repaired. She promised to return in the fall but has not come yet. I heard from her, however, a short time ago. She said there was no discomfort except from the escape of urine by vagina.

Another time I should be inclined to omit the suprapubic drainage. If packing the bladder is really needed, the drain can be carried through the vagina, and the abdominal wound allowed to heal promptly. The bladder itself can certainly be sutured tightly enough to avoid leakage, if there is free vent for the urine from below.

The temperature rose to 100.8° for several evenings after the operation; 99.5° in mornings. It then dropped to normal and stayed there.

#### PATHOLOGIST'S REPORT.

Specimen was sent to Dr. Leary, who reported as follows: "Received for examination a large, soggy mass of tissue, 7 x 5 x 3 cm., having for a base an oval, solid, central portion, 3 x 3 x ½ cm. On section, central portion is made up of retracted voluntary muscle fibres and the ragged mass surrounding it consists of thickened submucosa and mucosa, the latter being folded so as to form papillary projections which in places are massed so that an apparently solid surface is presented.

The projections can be separated and followed in many cases for a distance of 1 to 1½ cm. from the surface. The submucosa is thickly infiltrated with lymphoid and plasma cells. The mucosa, although increased in thickness through the formation of these papillary masses, does not show increase in the number of cell layers, nor does it show at any point a tendency to invade underlying tissues.

"*Diagnosis.*—Simple papilloma, probably of inflammatory origin."

#### THREE CASES, TWO OF PAPILLOMA OF THE BLADDER, AND ONE IN WHICH THE DIAGNOSIS OF PAPILLOMA WAS MADE, BUT WHICH TURNED OUT TO BE SOMETHING ELSE.<sup>1</sup>

BY F. B. HARRINGTON, M.D., BOSTON.

CASE I. J. P. K., age forty-nine, male. Entered hospital Aug. 20, 1900. Ten weeks ago streaks of blood in urine; rapid increase in amount; constant desire to urinate; anemic. No palpable tumor; lithotrite introduced; a feeling of soft tumor. Lithotrite opened and closed, and a piece of tumor resembling papilloma removed. Suprapubic cystotomy. Pediculated friable tumor at base of bladder in region of left trigonum—base the size of a silver dollar—removed with prostatome to a level with the bladder wall. The base was then curetted. Suprapubic wound in the bladder was closed, as there was little bleeding. The wound closed, and the patient was discharged Sept. 16. Soon there was a recurrence of the symptoms. The patient died a month later, the disease having rapidly returned with great loss of blood.

Dr. J. H. Wright made the following report of the tumor. "The microscopic examination shows that the tumor is of the nature of a villous growth, originating from the mucous membrane of the bladder with invasion of the bladder wall by the growth. The growth is to be regarded as malignant for the following reasons: (1) Because fairly satisfactory evidence was found of the presence of atypical epithelial cells, arranged loosely and in columns, in the submucosa; (2) because of the great variability in size and shape and abnormalities in appearance of the cells. *Diagnosis:* Villous carcinoma."

CASE II. H. H., fifty-nine years of age, male. Two years ago began to have hematuria. This gradually increased in amount. Occasionally the urine was clear. There was no odor to the urine and no great amount of discomfort in passing it. Examination of urine gave no sign of renal disease. No stone could be detected by the searcher. By bimanual examination an indistinct feeling of a soft tumor existed. Suprapubic cystotomy. A small, soft, pediculated tumor the size of a marble was found on the floor of the bladder. This mass was seized with forceps and removed by cutting with scissors, a portion of the bladder wall being incised with pedicle of the tumor. The bladder

Read before the Obstetrical Society of Boston, Feb. 18, 1902.



was closed at once, as there was little bleeding. The patient made a rapid recovery and has had no trouble since. The operation was done one year and eight months ago.

Dr. J. H. Wright made the following report of the tumor: "The specimen from the bladder sent to me July 2 is a papilloma. It consists of branching masses of epithelium supported upon a delicate vascular framework. The epithelium is many layers deep and has more or less resemblance to that of the bladder. In a portion of one of the specimens some of the bladder wall is included. So far as the section shows, this is not invaded by the growth. I think the tumor is not malignant."

CASE III. E. S. A., sixty-five years, male. Frequent micturition and some pain for the past five to six years. For the last six months there has been constant hematuria of moderate amount. The searcher shows a hard rounded mass, giving a grating sound, situated on the left side near the neck of bladder. Small bits of calculi have been passed, with shreds of tissue suggesting papilloma. Suprapubic opening made. A small tumor was found on the left bladder wall near the opening of the urethra. It looked like an encrusted papilloma. It was cut out. Patient made a good recovery and was relieved.

"Histologically, this tissue consisted of islands of lymphoid cells, with considerable new-formed blood vessels and connective tissue with granular exudate intermingled with a few leucocytes. Diagnosis: Chronic inflammatory tissue with incrustation."

#### SMALL PAPILLOMA OF BLADDER CHARACTERIZED BY AN EXCESSIVE HEMORRHAGE; REMOVED BY SUPRAPUBIC CYSTOTOMY.<sup>1</sup>

BY MAURICE H. RICHARDSON, M.D., BOSTON.

A MAN of thirty-six, referred to me by Dr. Temple, gave a twenty-five year history of intermittent hematuria, in which the loss of blood was at times so rapid and so excessive that the face presented a startling picture of anemia. He first came to me after a period of bleeding which had left his face, lips and nails without a particle of color. The loss of blood must have been indeed great to produce so excessive an anemia, for he was a large, robust man of unusual vigor.

The urine had been examined by Dr. Woods a number of times, with negative results as to the source of the hemorrhage. Dr. Whitney finally found in a clot evidence of a papilloma (villous cancer).

There were no physical signs of tumor in the genito-urinary tract or in the urine. Suprapubic cystotomy in the Trendelenburg position, performed on Dec. 12, 1901, showed at the left of the trigonum a long, slender-stemmed papilloma with numerous small branches. The bladder at the point where the tumor was attached seemed

perfectly normal. The base of the tumor was tied with a catgut ligature, which immediately slipped, but with no resulting hemorrhage. The base of the tumor was cauterized with the platinum at a red heat. The bladder wound was sewed up with catgut, which gave way the second day. A urinary fistula resulted, which rapidly closed. The patient was discharged well on Jan. 4, 1902. The change for the better in his strength, weight and color was extraordinary.

The diagnosis by Dr. W. F. Whitney was simple papilloma of the bladder, and his report was as follows:

"The specimen removed from the bladder of Mr. W. consists of a papillary growth measuring about 8 cm. in length, rising by a narrow, half-centimetre stalk, from the mucous membrane. Immediately above the surface of the bladder it divides extensively into numerous, long papillary projections. There are small secondary divisions.

"*Microscopic examination* shows the whole surface of a branch to be covered by microscopic elevations, over all of which is a single layer of rather large, slightly irregular epithelial cells. The base of the papilla is fibrous in character, with numerous small blood vessels."

Suprapubic explorations are to be recommended in all cases of hematuria in which, from the urinary examination, there is reason to suspect bladder tumors. Preliminary examinations with the cystoscope and the lithotrite should be made when the patient's strength is good. Exploration by suprapubic cystotomy is indicated early in the history of hemorrhage, for then the patient's powers of resistance are best, and the tumor is more easily and thoroughly extirpated. Prolonged delay is responsible for most of the failures, immediate and remote, that follow suprapubic cystotomy for bladder tumors.

### Medical Progress.

#### RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

##### MUSCULAR TONUS.

At the congress of French alienists and neurologists at Limoges, Crocq<sup>1</sup> opened an interesting discussion upon muscular tonus. Muscular tonus is the result of two factors, the muscular elasticity and the permanent excitation coming from the nervous centres. Section of the posterior spinal roots abolishes this tonus, and, in man, complete transverse lesions of the cord, in the cervical or upper dorsal region, abolish permanently and completely the tonus of the voluntary muscles, but exaggerate the tonus of the sphincters. Destruction of the cerebral lobes gives varying results in different animals. In the frog muscular tonicity is an elementary reflex, purely medullary; in man, however, the tonic currents to the voluntary mus-

<sup>1</sup> Read before the Obstetrical Society of Boston, Feb. 18, 1902.

<sup>1</sup> Rev. Neurol., Aug. 30, 1901.

cles are borne by the long tracts, and the centre is exclusively cortical, the short tracts having no part in it; but the tonus of the sphincters is governed by the short tracts. In the new-born, where the long pyramidal tracts are undeveloped, the muscular tonicity is governed by the short tracts. Muscular tonus varies in different individuals, and it is difficult to define absolutely normal tonicity, hypertonicity, hypotonicity and atony. Excitation of a voluntary muscle inhibits the tonus of its antagonist, and inhibition of the tonus of a voluntary muscle provokes hypertonicity of its antagonist. Complete destruction of the central or peripheral motor neurons or of their axis cylinder prolongations provokes atony of the corresponding muscles, and partial destruction causes hypotonicity. Pericellular or peri-axillar changes of the motor neuron cause hypertonicity. In muscular dystrophy there is hypotonicity or atony from alteration of the muscles or the nerve endings, which may be accompanied by a relative hypertonicity of the antagonistic muscles. In neuritis there is hypotonicity or atony from the alteration of the axis cylinders of the nerves, with hypertonicity, due either to the hypotonicity of antagonistic muscles or direct irritation of the axis cylinders. In poliomyelitis or polio-encephalitis there is hypotonicity or atony from lesion of the cell body of the peripheral motor neurons, with hypertonicity of the antagonistic muscles. In tabes there is hypotonicity from the affection of the peripheral sensory neurons, as is also the case in Friedreich's ataxia; but in hereditary cerebellar ataxia there is no alteration of the tonus. In organic hemiplegia the muscles are atonic or hypotonic when the function of the cortical motor neurons is wholly or partly destroyed, but they are hypertonic when the tonus of the antagonistic muscles is enfeebled or abolished or when the cortical motor neurons or their axis cylinder prolongations are irritated. In spastic paraplegia and multiple sclerosis there is hypertonicity from irritation of the pyramidal fibres. In amyotrophic lateral sclerosis there may be hypertonicity from the irritation of the pyramidal fibres or hypotonicity or atony from the destruction of the peripheral motor neuron. In combined sclerosis the condition varies according as the type is more like tabes or like spastic paraplegia. In compression of the cord the condition also varies as the pressure irritates the pyramidal tract (hypertonicity) or destroys the peripheral neurons (atony); later, when the fibres of the pyramidal tract are destroyed, there may be hypotonicity below the seat of the compression. In the spastic paralysis of childhood there is hypertonicity due to the continued functioning or the re-education of the short tracts, when there has been imperfect development of the long pyramidal tracts. In the neuroses and in general paralysis the muscular tonus varies; usually hypotonicity is due to states of cerebral exhaustion and hypertonicity to states of cerebral erethism. Grasset, in continuing the discussion, maintained that in man, as in the lower animals, there is also a centre in the cord and

in the nuclei of the mesencephalon, the pons, the red nucleus and the cerebellum. Brissaud contended, also, that total destruction of the central neurons did not inevitably lead to absolute atony, with a flaccid paralysis and a loss of reflexes, but that this condition arose only when the destruction was sudden.

#### COMPLETE TRANSVERSE SECTION OF THE SPINAL CORD AND SPASTIC PARAPLEGIA.

Ever since Bastian, in 1890, showed that complete section of the upper part of the spinal cord was followed by loss of reflexes and flaccid paraplegia, his doctrine has received confirmation by later observers, although it contradicted the theories and observations on the reflex inhibition by the cerebrum. Bastian explained this loss of reflex by the theory that the muscular tonus and the tendon reflexes were dependent on the cerebellum, which exerted an action on the ganglion cells of the anterior horns. The cerebrum inhibits the reflexes through the pyramidal tract. If the influence of the cerebrum is cut off, both the tonus (causing contracture) and the reflexes are increased, as is also the case in isolated disease of the pyramidal tract. When the cerebellar influence is also cut off, as in complete transverse lesion of the upper cord, there is flaccid paralysis and complete loss of the reflexes. Various writers have found also changes in the anterior roots and anterior horns at the level of the reflex arc after a complete transverse lesion of the cord higher up. Winter<sup>2</sup> confirms Bastian's theory in reporting a case of fracture of the upper dorsal vertebræ involving the third dorsal segment, which was almost completely destroyed, only about a hundred normal nerve fibres being present. The patient lived four and a half months after the accident. The knee jerks were absent at first, then they could be obtained by reinforcement, but later they disappeared again. The plantar reflexes were lost at first, but later they were obtained; their character (extension or flexion) is not described. The pyramidal tract below the lesion was wholly degenerated, so that reinforcement could have no effect upon any influences coming from the cerebrum, and its effect must therefore be due to its influence upon the cerebellum, increasing muscular tonus and bringing the cerebellar influence, through the few remaining fibres, to the anterior horns.

Brissaud admits that a sudden complete section of the cord may be followed by a permanent flaccid paraplegia, but he and Feindel<sup>3</sup> report a case of spinal caries in which there were three attacks of paraplegia. The first attack lasted seven or eight years, was attended with pain, and recovery was complete; the second attack was spastic in type, without any sensory disturbances; the third attack terminated fatally in about seven months, was spastic in character, and was attended with loss of sensibility to pain and temperature and diminished sensibility to contact. The paralysis

<sup>2</sup> Arch. f. Psych., 1902, xxxv, 428.

<sup>3</sup> Arch. de Neurol., January, 1902.

was nearly complete. The autopsy showed at the eighth dorsal segment a sclerosis of the cord so complete as to be equivalent to a section. It is difficult, however, to accept the hypothesis that the sclerosis was equivalent to a section when there was still some preservation of both motor and sensory functions.

A subsequent case reported by Brissaud at a recent meeting of the Société de Neurologie<sup>4</sup> is more conclusive. A woman was stabbed between the second and third dorsal vertebrae. This was immediately followed by complete paralysis and anesthesia, incontinence of urine and loss of the plantar and patellar reflexes. Two months later a Babinski reflex appeared, followed in a few days by a return of the patellar reflex, which gradually became exaggerated, and this exaggeration persisted until a few days before death. She lived seven months. The autopsy showed a spongy tissue connecting the two portions of the spinal cord, but no traces of cord tissue for a centimetre in length, nor even any continuity between the circulation in the two portions of the cord. Even if the knife had divided only the posterior portion of the cord at first, the division of the cord had become complete. This case, therefore, may fairly be said to sustain Brissaud's thesis: that slow compression of the cord, even if it lead to complete transverse destruction, may give rise to spastic paraplegia.

#### TRAUMATIC (?) SYRINGOMYELIA.

Kienböck<sup>5</sup> has made a critical study of 140 reported cases of syringomyelia in which the trouble was supposed to follow an injury. He limits the term syringomyelia, however, to the chronic progressive disease of the central portion of the spinal cord with glia proliferation, vascular changes and cavity formation,—to a primary central gliosis, as distinguished from other affections attended with cavity formation, such as hydromyelus, gliomatosis, myelomeningitis and sclerosed cicatrices following injury. In one group of cases the lesions are severe and come on immediately after the injury, in an apoplectiform manner. There may be at the same time some injury to the bony canal. The lesion is either a hemorrhage, which is most apt to involve the central gray matter, or a necrotic softening in the same region, to which he gives the name of "traumatic myelodelesia." When, as is often the case, the lesion involves the cervical gray matter, the clinical picture may be like that of syringomyelia: muscular atrophy of the arms, with exaggerated knee jerks, inequality of the pupils, partial anesthesia and deformity of the spine. In these cases of traumatic myelodelesia, however, the onset of the symptoms is sudden, while central gliosis is chronic and progressive from the start. In twenty-four cases with autopsy the paralytic symptoms came on immediately after the injury, and, after the first development, the condition remained stationary. Cavities were found in the

cord, but they were associated with injury of the vertebrae or a transverse lesion of the cord, and were often limited to one horn or one-half of the gray matter or in the white matter, and showed no traces of proliferation of the glia. There was very rarely any communication with the central canal and there were often secondary degenerations elsewhere in the cord. In the few cases where there was also alteration in the central canal the author thinks these changes due to pre-existing anomalies in the cord. In a second group of cases the diagnosis of syringomyelia was indisputable, but the traumatic origin of the affection was not established, and sometimes there was a strong probability that symptoms of syringomyelia had been present before the injury. In other cases still the diagnosis of syringomyelia is doubtful or the symptoms came on too long after the injury to be fairly attributed to it. There yet remain a few cases (eighteen in number) where the clinical diagnosis seems assured, which developed within a reasonable time after the injury and manifested a steadily progressive character. In all these cases there is wanting a careful examination to prove that syringomyelia had not existed before the injury, and it becomes impossible to determine absolutely whether the violence done to the cord was the special cause of the development of syringomyelia or merely gave occasion for the onset of the first symptoms.

As an aid in solving this problem Kienböck has investigated eighty cases of severe apoplectiform spinal lesions, where there was probably a central hemorrhage or necrosis, to determine whether true central gliosis might develop about such a lesion as a late result. In none of them does he find any evidence of a chronic progressive trouble, but in every case the condition remained stationary. When a central lesion arises in the cord from severe injury, with a marked paralytic condition of apoplectiform onset, a chronic progressive disease never develops. After the injury, whether there be vertebral compression or not, whether there be a complete transverse lesion or not, no matter what the longitudinal extent of the lesion or whether there be cavity formation or not, the result is always the formation of a simple scar with contracted sclerosed tissue, which may or may not become cystic, but which always remains quiet and never leads to progressive disease. After careful study he has failed to find proof that true syringomyelia (central spinal gliosis) of the chronic progressive type may arise from injury.

#### THE PROGNOSIS OF TABES.

At a recent meeting of the Société de Neurologie<sup>6</sup> in Paris, Brissaud stated that in his experience the cases of tabes which came under his observation were, as a rule, less severe than formerly, that complete tabes, the progressive locomotor ataxia described by Duchenne, Trousseau, Charcot and Vulpian, was much rarer. This held

<sup>4</sup> Rev. Neurol., Feb. 15, 1902.

<sup>5</sup> Jahrb. f. Psych., 1902, xxi, 50.

<sup>6</sup> Rev. Neurol., Jan. 15, 1902, x, 56.

true both for hospital cases and cases in private practice. The disease seemed to be of slower evolution, whether of the abortive or the complete type, and there were many more cases where the evolution was arrested and the tabes remained as an infirmity more or less grave or more or less slight. Furthermore, the disease seems to have much less of the progressive character than was described by Duchenne; there is often a regression, though not a remission, of all the symptoms. He inquired whether the greater efficacy of the newer methods of antisyphilitic treatment could account for the greater benignity of tabes today. We know that syphilis is of extreme virulence among the Arabs and Chinese, yet tabes with them is of extreme rarity. It may be that the variations in the course of tabes are due to variations in the previous infection, possibly brought about by treatment.

Pierre Marie agreed that the cases of tabes are less severe, and that there is occasionally a complete arrest of all the symptoms. The reflexes do not reappear and the Argyll Robertson pupils persist, but the lightning pains, the visceral crises and the motor inco-ordination grow less or wholly disappear. This amelioration he thinks due to the antisyphilitic treatment. Raymond agreed that the cases of tabes were now less severe, but he had seen no benefit from antisyphilitic treatment when tabes had once declared itself. The disease had been known to exist for fifty years without appreciable change in patients who avoided fatigue and alcohol, even if antisyphilitic treatment were never given. Babinski thought the benign cases much more frequent at present, and cited one case where the trouble had probably come on within four years after infection, yet the patient for forty-five years had had no symptoms except unequal and Argyll Robertson pupils and loss of reflexes. He believed, however, that many abortive cases are now revealed by more careful methods of examination, and these are certainly much more common. Out of two or three hundred tabid patients in his service not more than a score are frankly ataxic. Nevertheless, he thought that the antisyphilitic treatment, especially the protracted use of mercury so often employed in the early stages of tabes, was responsible for the greater number of benign cases. Joffroy, on the other hand, was not only doubtful of the efficacy of antisyphilitic treatment, but he believed that too vigorous treatment might aggravate tabes. He cited a number of cases, many of them observed years ago with Vulpian and Charcot, where there had been very marked improvement in the symptoms under rest, abstinence from alcohol, baths, etc., but where no antisyphilitic treatment had been given. In other cases such treatment had been wholly without benefit. Ballet also believed that tabes was more benign today than formerly, but it is impossible to say whether it is due to a diminished gravity of the disease or to antisyphilitic treatment. Many cases which never receive such treatment show an equally benign course. We can, however, detect

abortive cases much more easily than we could twenty-five years ago. Marie, however, called attention to the fact that twenty years ago at least we could detect the abortive cases by means of the Argyll Robertson pupil and the loss of knee jerk, and that few new signs had been added to aid us in diagnosis. He therefore believed that tabes was actually less severe and that we know better how to treat it.

[It is interesting to note, as Ballet hinted in the above discussion, that the type of general paralysis has also grown much more benign in the last twenty-five years. Mendel a few years ago<sup>1</sup> pointed out the increased frequency of the demented type, and the violent cases with pronounced delusions of grandeur, as originally described by Calmeil, are comparatively rare.]

(To be continued.)

## Reports of Societies.

### THE OBSTETRICAL SOCIETY OF BOSTON.

MALCOLM STORER, M.D., SECRETARY.

MEETING of Feb. 18, 1902, the president, DR. ENGELMANN, in the chair.

#### REPORT OF COMMITTEE ON MIDWIVES.

DR. J. G. BLAKE: At a former meeting of the society I called attention to the number of deaths occurring in cases where only midwives are employed. These are for the most part among the poorest Italians. These women are many of them filthy and uninstructed, and the conditions are most deplorable generally. I have consulted Dr. Harvey in the matter, and suggested that some improvements could be made in existing legislation. It was pointed out to me that the present law provides a sufficient remedy. But as, according to it, each individual midwife would have to be sought out and prosecuted, the law is practically ineffectual. In other cities progress is being made, and I hope that at the next meeting I shall be able to report that a movement in the right direction has been made here also.

DR. H. E. MARION reported orally a case of

#### ADENOMA OF THE NIPPLE

and showed the specimens from the same.

DR. G. H. WASHBURN read a paper entitled

#### PAPILLOMA OF BLADDER, WITH OPERATION; REPORT OF A CASE.<sup>1</sup>

DR. M. H. RICHARDSON reported a case of

#### SMALL PAPILLOMA OF BLADDER, CHARACTERIZED BY EXCESSIVE HEMORRHAGE; REMOVED BY SUPRAPUBIC CYSTOTOMY.<sup>2</sup>

DR. W. L. BURREAGE: I remember a case in which I made the diagnosis of papilloma with

<sup>1</sup> Neurol. Centrbl., Nov. 15, 1898.

<sup>2</sup> See page 570 of the Journal.  
<sup>3</sup> See page 572 of the Journal.

the cystoscope. Dr. Conant operated upon the case and will perhaps tell us about it.

DR. W. M. CONANT: The chief point of interest about the case was the fact that shortly after the cystoscopic examination a part of the tumor was passed. Microscopic examination of this piece showed it to be a papilloma with beginning degeneration. This brought up the question of how the tumor should be dealt with. I decided upon the suprapubic route. The operation thereby is easier. The whole tumor was removed and its base sewed up and the bladder wall closed with three layers of catgut, which lasts long enough for union, and the abdomen closed. Recovery was uninterrupted. There have been no symptoms since. The pathologist reported that most of the mass removed was a degeneration of a papillary affair; if it had not been pedunculated the operation would have presented great difficulties.

Another case of mine shows the great need of careful diagnosis. In a man of sixty a mass could be felt, very much like a third lobe of a prostate or a large left lobe, but yet not entirely so. Consequently I decided against doing an Alexander's prostatectomy, and opened the bladder from above. It then appeared that the case was one of malignant adenoma, and further interference was abandoned. If an attempt had been made to remove it by the Alexander operation, with the idea that it was a prostate, the consequences would have been most serious. I think the dirtier the bladder the tighter it should be sewn up. It is not good surgery to allow dirty urine to trickle over a clean wound. There is little hemorrhage as a rule, and packing for a short time will control it.

DR. G. J. ENGELMANN: I agree with the importance of closing the bladder. In operating for malignant disease of the bladder it seems to me that a far more reaching procedure than mere removal of the tumor is indicated.

DR. F. B. HARRINGTON: I feel about cancer of the bladder much as I do about cancer of the tongue—that the outlook is most unfavorable. Nevertheless, one can often accomplish something, and cases that are thought to be malignant may prove not to be so at operation. We certainly are justified in operating. Palliative treatment often renders what is left of life more endurable. In such cases it is my custom to close the bladder but not the abdomen, so that if there be leaking of urine it may be recognized.

DRS. STORER and WASHBURN said they had seen cases where the entire bladder had been removed.

DR. WASHBURN: I have been surprised to find how seldom the suprapubic operation is done in women. Mann makes the statement that in women the bladder always should be opened from the vagina. In my case the operation could not have been done by the vagina. The bladder wall could not have been pulled down sufficiently to bring into sight the separate places invaded by the growth which had to be removed. I do not now feel that the suprapubic wound should have been left open. Hemorrhage can be

controlled perfectly from below. In this case the intolerance of the catheter was conspicuous, morphia had to be given, whether passed through the urethra or the vaginal wound. Generally the self-retaining catheter gives little trouble. This case made me feel strongly the necessity of clearing out all the growths in the bladder if a permanent cure was aimed at.

DR. F. B. HARRINGTON reported

THREE CASES, TWO OF PAPILOMA OF THE BLADDER, AND ONE IN WHICH THE DIAGNOSIS OF PAPILOMA WAS MADE, BUT WHICH TURNED OUT TO BE SOMETHING ELSE.\*

DR. J. B. SWIFT: I should like to ask why Dr. Harrington used the rectal tube, whether he would treat such cases by the tube alone.

DR. HARRINGTON: I merely meant to say that it might be well in such cases to make a routine practice of using it to tide patients over acute attacks if possible, and get them into condition for a later operation.

DR. SWIFT: I had a similar case two years ago, when the symptoms had extended over twenty years. The history was one of chronic constipation. At no time were there symptoms of absolute obstruction, but the abdomen would be enormously distended by flatus. The rectal tube and cleansing out the impacted feces would give relief for a time. During the last week of her life there seemed to be a complete paralysis of the intestines. No cause for the condition could be found, and an exploratory laparotomy was refused.

DR. J. G. BLAKE: Thirty years ago I saw a case of dilated intestine who time after time was rescued from imminent death by puncture of the intestine by a fine trocar. In all, his intestines were punctured over 150 times, I frequently doing it twice a day. As soon as the intestine filled up with gas and the breathing became embarrassed the trocar would give complete relief for a few hours. After nineteen weeks, the obstruction, whatever it was, gave way, and after a violent diarrhea the patient died. During that time, the frequent punctures, together with a diet of exclusively champagne and brandy, had kept him alive. There was never any ill effect from the puncture. In those days medical feeling was strongly against opening the abdomen, and now an operation would be done in the first of such a case, but I speak of the case to show what could be done before the days of operating.

DR. M. H. RICHARDSON: While the cause of these dilations is absolutely a matter of conjecture, I have several times seen in the dissecting-room and during operations a very tortuous condition of the colon. My theory is that this is caused by constipation. There is an acquired inability of the large intestine to empty itself; hence, this tortuous condition, with sagging in the region of the liver and spleen. The intestine becomes the seat of immense collections of gas and feces, which can be removed only partially by the rectal tube, as only so much will be obtained as is

\* See page 571 of the Journal.

expelled by the contraction of the abdominal muscles. I have passed tubes into such dilated intestines where nothing could be obtained without milking the tube, as it were. Possibly pumping out the intestine would have worked, though I did not try it. One of my cases shows well the tendency of this condition to recur. Some years ago I removed her whole sigmoid, fourteen inches in length. In a year she grew another, which I removed. Later, a large number of transverse pleats in the new sigmoid were made, followed still later by an anastomosis between the sigmoid and the rectum. An ovarian tumor was then removed, and shortly after that I opened her again to separate a number of adhesions, and recently I have done a colostomy. Incidentally, Christian Science, mind cure and electricity have been tried, along with everything else. The trouble in this case seems to be due to a nervous failure of peristalsis.

DR. F. T. HYDE: In a case of mine for some thirty years a ring of tissue has been felt in the region of the cecum. For the last two years he has had only one movement every two weeks. Occasionally he swells up, but everything quiets down with the use of a tube combined with free catharsis.

DR. HARRINGTON: Treves says that most of these cases are due to stricture by some mechanical obstruction. I feel sure, however, that there are cases in which there is no stricture, in the ordinary sense. Dr. Richardson's explanation explains to a certain extent. I think, however, that a case such as mine, with such small lungs, presupposes a condition existing from infancy, if not congenital.

DR. WORCESTER: Does Dr. Harrington think that the condition demanding operation was merely an acute exaggeration of a trouble existing for years or a new inflammatory development?

DR. HARRINGTON: I think that the condition had existed for many years, and that a sudden increase in the quantity of the retained feces and gas had produced, by valve-like action, a complete obstruction.

DR. WORCESTER: I am trying to imagine just why she died after an operation that should have given her relief, unless, possibly, the pressure being removed, there was sufficient filling of the portal vessels to allow her practically to bleed to death into them.

DR. HARRINGTON: The cause of death, I think, was exhaustion from complete obstruction of the bowels, following upon a condition of chronic partial obstruction. It is remarkable that, with such a condition, she should have borne five children and done ordinary housework.

DR. ENGELMANN: It would seem worth while in such cases to try electricity, used in the manner that is so effective in chronic constipation with a moderately distended bowel. The bowel is filled with water, which forms one pole, into which the electrode is introduced through the tube, while the other pole is placed on the abdomen over the sluggish bowel. Thus the water in

the bowel conducts the electricity to every part of its wall.

#### SPECIMENS.

DR. RICHARDSON showed (1) uterus, said to have been seat of a Cæsarean section eighteen years previously, removed on account of uncontrollable hemorrhages; (2) a uterus removed for cancer; (3) a case of fibromyoma.

#### THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

SIXTEENTH ANNUAL MEETING, HELD IN ATLANTIC CITY, N. J., APRIL 29 AND 30, 1902, THE PRESIDENT, WILLIAM T. BEIFIELD, M.D., IN THE CHAIR.

#### FIRST DAY.

#### THE TECHNIQUE OF PROSTATECTOMY: CASES AND SPECIMENS IN ILLUSTRATION.

DR. JOHN P. BRYSON of St. Louis read this paper, reporting several cases and presenting to the association a large number of specimens. After considering the etiology and pathology of the vesical conditions in prostatism he stated that an adequate technique must include the removal, not only of the urinary, but equally that of the circulatory obstruction, and that an operation that dealt only with one of these was incomplete. With such modifications as seemed to be demanded by special conditions the technique was as follows: The anesthetized patient, whose perineum and abdomen had been prepared as for a celiotomy, is placed in a lithotomy position, a catheter introduced, the bladder irrigated with warm boric acid solution and filled with warm salt solution to a point just below that which produces distention reflex. A broad, grooved staff is introduced and a free perineal incision made in such a way as to open the urethra just in front of the apex of the prostate. Most frequently the bulb is split, in which case a vessel is clamped, or the oozing is staunching by a catgut suture *en masse*. The knife, after entering the groove of the staff, is pushed backward far enough to incise the ring at the apex of the prostate, which is one of the least distensible parts of the duct. The forefinger follows well into the prostatic urethra, usually tearing it somewhat, and the staff is withdrawn. The finger quickly exposes the prostatic urethra, and ascertains whether the vesical outlet can be reached; after which the forefinger of the right hand in the rectum permits bimanual examination of the part of the prostate within reach. Guided by the finger a blunt instrument is now passed into the urethra and made to puncture from the urethral side the most prominent part of the mass. This puncture is always made in the lower posterior quadrant, and the instrument is pushed well into the swelling. On its withdrawal the finger tears its way into the centre of the mass, which, even in fibrous prostates, is comparatively friable. The mass is



now opened through to its capsule, the finger swept round its periphery without tearing the prostatic capsule or fibrous sheath of the gland. In the meantime the urethra is felt to tear longitudinally. After the lobe has been loosened all around there remains the attachment to the urethra, in detaching which care must be had not to take away too much of the sides nor any of the roof of the urethra. The floor may be disregarded if necessary. The hypertrophied lateral lobe is then removed, to do which one has often to go well up behind and beside the neck of the bladder; yet it is possible to do this and keep within the capsule. Very little bleeding follows, but what there is appears to come from the torn mucous membrane, the lower part of which is often brought away. If there is any difficulty in delivering the detached mass, which is very smooth and slippery, an ordinary lithotomy forceps may be employed. If it is too large it may be broken up with the finger or divided with scissors. This process is repeated on the opposite side, after which a median posterior segment remains to be dealt with. This can usually be done by sweeping the finger from side to side, its dorsal aspect towards the capsule, pushing it backwards in such a way as to detach it well up behind the bladder and roll it downward. One may be surprised to find that he may get behind and excise what he had just felt as a pedunculated intravesicular projection, or a growth *en colerette*, bringing it well down by use of the forceps, apparently without disturbing the fibrous ring at the vesical outlet. Most frequently one finds the attachment of this mass to the urethra quite firm, and, no matter how much care is taken, some of this membrane is brought away. The more the detached mass is rolled downwards by pulling upon its upper surface, the less mucous membrane is removed. In some cases the whole of the floor, including the colliculus and verumontanum, has been removed without harm; in fact, in most of these cases this has been necessary, the explanation of which may be found in the anatomical fact that the collecting tubes of the prostatic gland, passing from the lateral lobes and, if there be any, from the median portion, as well as the ejaculatory ducts, unite here and empty into the sulci on either side of the verumontanum, while the colliculus often passes deeply into the tissue; this shows, also, how it is that those who practice excision from the capsular side find it necessary to make a hole in the urethra at this point, or to cut the pedicle with knife or scissors. Usually, now, the finger may be passed through the ring into the bladder, which may be explored thoroughly. The cavity is now irrigated with a hot salt solution until the oozing ceases. If the finger be now introduced, the floor and the sides of the urethra will be found intact, the latter often hanging loosely against the outer wall or sides of the cavity from which the growths have been removed. A large cavity is made out between the lower part of which and the rectum there is felt a thin wall. Into the lower part of

this, hinged posteriorly about the ring at the vesical neck, is an irregular flap of mucous membrane, which can be pushed up and back and often made to occlude the vesical outlet. The walls of this cavity feel rough and irregular and often shreddy; nevertheless, they do not seem to be a poor basis for "taking" of a graft; for it seems that, if properly managed, this tongue of mucous membrane readily becomes attached, behaving subsequently like an autoplasmic flap. Care must be taken not to double backwards and push this flap into the bladder when the large drainage tube is introduced, the sound edges retracted and the cavity packed with gauze loosely or tightly, as may seem necessary, to provide against subsequent hemorrhage. In packing, one naturally takes into account any oozing point, usually found about the edges of the mucous membrane.

#### THE SURGICAL RELIEF OF PROSTATIC HYPERTROPHY.

DR. CHARLES H. CHETWOOD of New York read this paper, drawing the following conclusions which were based upon his personal observations: Palliative measures should not be persisted in when they fail, after reasonable duration, to produce and maintain an abatement of symptoms. A first infection of the bladder is not alone sufficient excuse for operation unless palliative measures fail to promptly subdue inflammatory conditions. Recurring infection of the bladder or ascending infection of the kidney is sufficient warrant for operative interference. There is a growing tendency toward earlier operation than was formerly practised. The greater number of cases of prostatic hypertrophy can be satisfactorily reached through a perineal incision. In the large majority of cases the requirements of any operation upon the prostate consist in the removal of the obstructing area and depressing the bladder opening into the prostate, so that the bas-fond may be properly drained. In many cases the obstructing area of the hypertrophied gland can be satisfactorily reached and effectually removed through a perineal opening by means of galvano-caustic incisions. Perineal galvano-prostatotomy is preferable to the Bottini operation, on account of its greater accuracy and lower mortality.

#### BOTTINI'S OPERATION.

DR. HENRY H. MORTON of Brooklyn, N. Y., presented a case occurring in a patient aged seventy-eight years, who for one year prior to the operation had been complaining of tenesmus and frequent and painful urination, and at the time of his admission to the hospital there was complete retention of the urine. At this time the prostate was observed to be  $1\frac{1}{2}$  inches in diameter, and the cystoscope revealed an enlarged middle lobe and trabeculated bladder. The urine was acid, cloudy, with a specific gravity of 1.016, and showed a slight sediment, which contained pus cells but no casts. Bottini's operation was performed, three incisions being made, the anterior one being 2 cm., the posterior 3 cm. and the left lateral 2 cm. in length. Catheterization was

necessary until the third day after the operation, when the patient began to urinate spontaneously.

Eleven days after the operation micturition occurred every hour during the day and five times at night, catheterization being performed once daily with a withdrawal of 3 to 4 oz. of residual urine.

One month after the operation the patient urinated six times daily and four times at night, and, although the stream was slow in starting, it was ejected with good force. The cystoscope at this time showed the posterior lobe of the prostate with a cleft in the middle made by the Bottini incision, and the patient continued to be in good general condition, being up and about the ward. Subsequently his appetite and general vitality began to deteriorate, and fifty-four days after the operation he died.

A complete autopsy was not permitted, but the bladder was examined and found to be contracted. It contained a small quantity of thick and foul pus; many small necrotic areas were scattered about the surface, and a number of small sacculi, one containing a small calculus, were observed. Traces of the posterior incision were very distinct. The interureteric fold of the mucous membrane had been divided, and the middle lobe of the prostate cleft in halves, necrotic areas being visible at the apex of each half. The left lateral incision had not split the prostate, but merely separated mucous membrane from superior surface of prostate, and no traces of the anterior incision were visible. The kidneys were not examined, but, as previous urinalyses had revealed the absence of casts, the cause of death was probably cystitis, which had been greatly aggravated by the operation. The middle lobe of the prostate was completely divided. The reduction in size of the prostate following Bottini's operation probably results from the sloughing subsequent to the burning. The difficulties of placing the instrument in a correct position are shown by the fact that the left lateral incision did not divide the left lobe of the prostate, as intended, but only lifted up the mucous membrane covering it, while the anterior incision was found not to be made at all. The obstruction to urination was relieved by a single incision through the posterior median lobe of the prostate, and death did not occur until seven weeks after the operation, at which time the relief was complete. The only reasons he was kept in the hospital until his death were for bladder washing and because he had no home, and had he left the hospital as soon as he was able to go after the operation, his case might have been reported as one of complete retention of urine in a man seventy-eight years of age entirely cured by Bottini's operation.

#### PROSTATECTOMY.

The same author reported the case of a patient aged sixty-two years, who entered the hospital suffering from retention of urine, due to prostatic enlargement. Attempts had been made

by his physicians to introduce a catheter, and a false passage into the prostate had resulted. At this time no instrument could be passed into the bladder and external urethrotomy without a guide was performed. For three weeks subsequent to this the bladder was drained through a 30 catheter, at which time it was removed, but owing to the fact that the patient could not urinate, it was again introduced and allowed to remain two weeks longer, at which time prostatectomy was performed. The method employed was a suprapubic cystotomy to depress and hold prostate, and the perineal wound was used to shell prostate out from the capsule. No difficulty was experienced in enucleating three tumors  $\frac{1}{2}$  to  $1\frac{1}{2}$  inches in diameter, and there was no hemorrhage following the operation. Drainage was obtained through perineal and suprapubic tubes. Patient did well for three days, during which time the drainage was perfect, but later developed sepsis and died ten days after the operation. The autopsy showed suprapubic wound intensely infected; the cavity from which the prostatic tumors had been removed was healthy in appearance, and indicated that it would have healed entirely by granulation. The obstruction to urination had been entirely relieved by the enucleation of the prostatic tumors.

#### REMOVAL IN TOTO OF ALL THREE LOBES OF THE PROSTATE BY SUPRAPUBIC CYSTOTOMY.

DR. CHARLES L. GIBSON of New York presented this specimen, which was removed from a patient, sixty-two years old, who was admitted to the hospital July, 1901. There was a history of increasing obstruction of urine for past six years. Urine frequently dribbles away. Examination by rectum show a considerable degree of enlargement of both lateral lobes. There were 15 oz. residual urine obtained on several occasions. Moderate cystitis. No evident kidney lesion. Prostatectomy by the Alexander operation was undertaken, but the first step revealed the bulging of the prostate into the lumen of the bladder so distinctly that he determined to remove the enlarged portions by this direct approach. The vesical mucous membrane was incised over the urethral orifice, and he then found that his finger could be easily swept all around the prostate; so, in a few seconds he brought out the whole prostate *en masse*. The urethral outlet must have been avulsed, but of this he was not aware, so the prostate was simply shelled out without any force and without any bleeding. The operation was completed by adding a perineal boutonniere for drainage. The result promised to be favorable, as there was no reaction. On the fourth day the dressings were changed, the bladder washed out, and the patient's condition appeared to be admirable, with a normal temperature and a free secretion of urine. Yet, six hours later, the patient died without any particular manifestations. No autopsy.

The case was presented, not to recommend that the prostate should be removed *in toto* with the necessary drawback of destroying the urethral

outlet, but for the purpose of emphasizing how easily the prostate, or portions of it, can be removed without destruction of tissue or hemorrhage provided one clearly enters the essential line of cleavage.

THE USE OF THE CAUTERY UPON THE PROSTATE THROUGH A PERINEAL OPENING; NEW METHOD, WITH DEMONSTRATION OF INSTRUMENTS AND REPORT OF CASES.

This paper, by DR. WILLIAM N. WISHARD of Indianapolis, was read by DR. BRANSFORD LEWIS of St. Louis.

DR. EUGENE FULLER of New York said that during the last one and a half years he had performed twelve perineal prostatectomies with but one death, which occurred from delirium tremens. The oldest patient was eighty-one, and had atheromatous arteries and a mulberry calculus in his bladder, to remove which he was compelled to make a suprapubic opening. Another patient had tuberculosis of one lung and spinal anesthesia was given with good results, although the patient died seven or eight months after the operation from progressive tuberculosis.

DR. FRANCIS S. WATSON of Boston said that in 1888 he made the statement that two-thirds of all cases of prostatic hypertrophies would be found within the reach of the finger after a perineal incision through the urethra; the same statement held good today. He did not believe that an elaborate armamentarium was necessary; he used a little instrument made on the plan of the old gum-lancet, with which the mucous membrane was split, and then the forefinger was utilized in completing the work of removing the prostate.

DR. GEORGE CHISHORE of San Francisco said that for thirty years he had seen many operations advocated for the relief of this condition, and they had all been disappointing in their results; but of late he thought he would have to change his views. He had had an opportunity of observing eight cases operated upon by Dr. Goodfellow of San Francisco.

THE OPERATIVE TREATMENT OF HYPERTROPHIED PROSTATE; WITH PRESENTATION OF SPECIMENS AND MODELS ILLUSTRATIVE OF THAT CONDITION.

DR. BRANSFORD LEWIS of St. Louis said that, while claiming for prostatic surgery the merit of wonderful progress in the last fifteen years, he thought that the profession was not above criticism in certain respects, and that operators were much inclined to follow beaten tracks and routine procedures rather than base their operative treatment on the especial conditions found in each individual case.

The condition favorable for the several operations in vogue were summed up as follows:

*Favorable for the suprapubic route.*—(1) General enlargement of the prostate, with extreme intravesical projection of the median or lateral lobes, diminishing their accessibility from

the perineum; (2) marked pedunculation of the intravesical tumors, with absence of obstruction from other sources.

*Favorable for the perineal route.*—(1) General hypertrophy, involving the lateral lobes, without extreme intravesical projection; (2) large or very thick bar formation; (3) severe compression of the urethra between massive lateral lobes; (4) excessive development of the prostate in the direction of the rectum; (5) in most cases, where the patient is in good general condition, is not too aged, and there is not a special indication favoring one of the other procedures.

*Favorable for the Bottini.*—(1) Cases of extreme debility, or of extreme age, unable to stand one of the severer operations; (2) cases of bar or median sessile obstruction, if not too great dimensions; (3) Horwitz says it should be employed as a prophylactic against further obstructive tendency, at the beginning of catheter life; (4) in complete collar formation.

DR. F. L. STURGIS of New York said that the removal of the prostate and ejaculatory ducts prevented the flow of the prostatic secretion which was so essential to the vitality of the spermatozoa and, therefore, tended to render the male sterile. Some partial operation, such as the Bottini, was preferable on this account.

DR. EUGENE FULLER of New York did not think we could group the different forms of hypertrophied prostates under such a small class as shown by Dr. Lewis. If one had to deal with 100 cases of prostatectomy there would certainly be 75 of them that would represent something new. In cases complicated with troublesome hernias many surgeons operated without having in mind the cause of the hernia, the straining, etc., consequent upon the urethral obstruction. No matter how severe the hernia seemed to be, if the bladder be opened and drainage instituted, the tenesmus ceases and the patient may not again be troubled with the hernia. This also applied to prolapse of the rectum incident to the straining and tenesmus.

DR. F. TILDEN BROWN of New York said that Dr. Lewis had failed to show how we were to know in advance just what form of prostatic enlargement we were to deal with. The use of the cystoscope for this purpose was very unsatisfactory. Again, it was very necessary that one should know the condition of the kidneys and what sort of urinary obstruction we had to deal with, and this was difficult to learn. It seemed to him that where there was the slightest excuse for making a suprapubic incision for drainage, such an incision should be made use of for the introduction of the cystoscope with which one could look directly down and learn the nature of the obstruction or growth. Recently he had the opportunity to examine two cases through a suprapubic opening in this condition, and he had learned a great deal that would have been impossible to learn if the cystoscope had been introduced through the urethra.

DR. H. H. YOUNG of Baltimore reported a case in which no enlargement could be found by rectal and cystoscopic examination, but was found by epicystotomy to have a small globular tumor of the verumontanum which was causing the obstruction. He had had several cases of so-called small sclerotic prostate, which also showed by rectal and cystoscopic examination very little evidences of hypertrophy, and on which a prostatectomy would be impossible, that was cured by the Bottini operation. In four cases which had previously been castrated he found with the cystoscope a collarette of mucous membrane and fibrous tissue around the prostatic orifice which continued to cause obstruction after the lateral lobes had atrophied. This, also, was relieved by the very small blade of the electro-incisor. He wished to reassert his adherence to the radical removal by prostatectomy in fit subjects. He had used both the perineal and suprapubic routes with but one death in fourteen cases. Many of his cases were so old that he feared the radical operation and general anesthesia, and found the Bottini operation eminently satisfactory. He had had nineteen cases over seventy years of age, three over eighty, and operated under cocain with the electro-cautery without a death and with good results.

DR. STURGIS of New York said that in the case of the tumor of the verumontanum the endoscope would have shown what the cystoscope had failed to show.

DR. BRYSON of St. Louis said he had had three or four such cases where he did an epicystotomy and found a tuberculous condition; they were scraped and cure followed.

DR. WILLIAM T. BELFIELD of Chicago said that none had as yet penetrated beyond the threshold in our endeavors to relieve these obstructions. It must be admitted that nothing was known regarding the etiology of these conditions. We all know that some of the most violent cases of so-called prostatism occur when there is no prostate at all. We know of certain young men whose prostates are not enlarged; nevertheless they have symptoms of prostatism with residual urine, etc. Such cases have been described by Chetwood and others under the name of contracture of the vesical neck. There are cases occurring in women with all the symptoms of prostatism, with complete retention, residual urine, trabeculated bladder, showing the efforts of the bladder to overcome the obstruction, and yet there is no prostate. He thought we were overestimating the importance of enlargement of the prostate as a cause of the trouble. He thought more attention should be paid to contractures, or fibrous degeneration of the vesical outlet, that may be present without any prostatic enlargement whatever. Again, we know that the prostate has no function except that imposed upon it by the internal secretion of the testicle; if we remove the testicle the glandular part disappears by atrophy. If such is the case, and it be shown that the secretion of the testicle has anything to do with the production of the adenomatous enlargement, then

it would seem rational to assume that no operation except a radical one would be of great benefit. The Bottini operation as a prophylactic one is unreliable. In the Bottini operation simply scratching offers no improvement which cannot soon be overcome by some causative agent which may be circulating in the blood.

#### THE VALUE OF THE PHLORIDZIN TEST IN DETERMINING THE FUNCTIONATING CAPACITY OF THE KIDNEYS (PRELIMINARY REPORT).

DR. FRANCIS S. WATSON of Boston read this paper.

#### A NOTE UPON THE DETECTION OF STONE IN THE KIDNEY BY SKIAGRAPH, WITH SPECIMEN.

DR. JAMES BELL of Montreal exhibited photographs of a case in which the skiagraph had demonstrated a stone with perfect satisfaction. The patient was rather a slight, poorly nourished woman, forty-two years old. She had her first attack of colic when she was four months pregnant in 1897. She remained well until 1900 when, being three months pregnant, she had another attack. She then remained well until 1901 when she had other attacks occurring on the right side. She had observed no change in the urine, but she declared she had noticed some swelling on that side with each previous attack. After admission to the hospital skiagraphs were taken, which showed a small oval stone in the lower half of the kidney, which was removed by the loin incision, and it was shown to be of the size and shape as depicted in the skiagraph.

#### SECOND DAY.

This session was devoted to a "General Discussion of the Surgical Treatment of Genito-Urinary Tuberculosis."

#### RENAL TUBERCULOSIS.

DR. F. TILDEN BROWN of New York opened the general discussion on this topic, and said that the results of necropsies were at variance with the clinical showings in the disease, as a rule, and that if we relied upon the evidence as produced at autopsies we would be convinced that there were but few cases of isolated renal tuberculosis which justified surgical intervention. He thought that a contribution from the hospital records extending over a period of ten years would be of value, although the statistics were incomplete. At the Presbyterian Hospital, New York, from February, 1892, to March, 1902, there were 1,427 necropsies, of which number 258 (18%) showed tuberculous lesions somewhere in the body, and 48 of them (18.5%) showed renal tuberculosis. Of these 48 cases 32 occurred in males and 16 in females. Of the 48 cases 39 had tuberculous lesions in both kidneys, while but 9 had tuberculosis of one kidney. Of these 9 cases 5 involved the right and 4 the left kidney. Of the 258 tuberculous bodies it was shown that the kidneys were more commonly involved than the spleen,

liver or adrenals (kidneys involved in 48, spleen in 32, liver in 32, adrenals in 8, etc). During the same time there were in the hospital 78 cases diagnosed as renal tuberculosis, if the authorities be given the credit of making such a diagnosis in 48 cases where the kidneys were found to be involved in tuberculous lesions at autopsy. Of these 78 cases 13 (16%) had nephrectomy performed, with one death occurring two months after the operation; at the autopsy the other kidney was found to be far advanced in the disease. That gave a mortality rate of 7.6%. Of these 13 cases 6 fell into the speaker's hands; he had no deaths. The vast majority of cases that come to autopsy which show tuberculous lesions in the kidney were of the disseminated general miliary type, and with such a class of cases, of course, the surgeons have nothing to do with. At the present time we are sure that there is no form of medical, hygienic or climatic treatment that is at all curative in renal tuberculosis. The evidences at necropsies show as high as 3 or 4% of healed cases of pulmonary tuberculosis; whereas, it is the rarest occurrence to find at autopsy any evidence of healed renal tuberculosis.

The speaker then showed photographs of Nature's efforts in the attempt to cure renal tuberculosis. From a surgical standpoint he was satisfied that no surgeon today would hesitate to perform an immediate nephrectomy when he was sure that one kidney contained the only appreciable focus of the tuberculosis. Through the courtesy of his colleague, Dr. Tuttle, he was able to show a picture of a case of pseudotuberculosis of the kidney, a very rare condition, which was first described in 1891.

#### TUBERCULOSIS OF THE SEMINAL TRACT.

DR. HUGH H. YOUNG of Baltimore said that although tuberculosis of the seminal tract had been the subject of much investigation and discussion during the past three years, there were still wide and important differences of opinion among prominent surgeons both as to the pathology and the treatment of the disease. The main questions at issue, he said, were these:

*The pathology.*—Is the primary localization in the epididymis, in the prostate, or in the seminal vesicles? In disease beginning in the epididymis how often does the testicle become involved, and how soon? Does the disease ever begin primarily in the bladder and from there travel to the genital organs?

*Treatment.*—In tuberculosis of the epididymis is castration or epididymectomy the better operation, and what are the limitations of each? Is double castration followed by important psychical or sexual disturbances? To what extent should the vas deferens be followed and removed? Is forcible avulsing advisable? With disease of the prostate and seminal vesicles what should be the treatment? What hygienic and climatic treatment should be employed? Should the patient rest or lead an active life?

(To be continued.)

## THE BOSTON Medical and Surgical Journal.

THURSDAY, MAY 29, 1902.

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283 WASHINGTON STREET, BOSTON, MASS.

### THE FIFTY-NINTH REGISTRATION REPORT OF MASSACHUSETTS.

SOON after the establishment of a system of Registration of Births, Marriages and Deaths in England in 1838, Massachusetts followed with a similar plan in 1842, and from that time onward its reports constituted an authority of the highest value, this value increasing as the facts and observations essential to such work were accumulated, from year to year. The early work of Lemuel Shattuck, Dr. Jarvis, and Dr. Josiah Curtis in improving the character of these reports, had, in consequence of its accuracy and thoroughness, proved a useful model to the other New England States.

An examination of the meagre and untrustworthy reports of this series, which have been issued during the last few years, shows that this important work, so far as its publication for useful purposes is concerned, has fallen into the hands of the Philistines. It is not surprising that Dr. Wilbur, the noted Michigan expert, should have recently said of it:¹

"An unfortunate history has befallen the once noble series of Massachusetts Registration Reports, the mother reports of this country, and to which we in Michigan, as well as vital statisticians generally throughout the country, owe a vast debt. For some years past, instead of being edited by some of the leading vital statisticians of the country, under the auspices of the State Board of Health, their editorial preparation has been conducted by those who were solely interested in cutting down the number of pages of printed matter, possibly in order to subserve some false notion of economy, and who were contemptuously proud of an entire lack of interest and knowledge pertaining to vital statistics. This is mentioned in order to afford additional illustration of how profoundly the value of statistical reports depends upon the editorial supervision, as well as upon the statistical material."

¹ Bulletin No. 2, Vol. 2, Vermont State Board of Health, Address of Dr. C. L. Wilbur, p. 29.

The following are some of the defects to which Dr. Wilbur undoubtedly alludes :

The entire work is archaic, and when compared with similar reports of other states, has an out-of-date appearance. As Mark Twain says in his latest effusion, it appears to be "sanctified by use and petrified by custom." For an example of its antiquated character, one needs only to turn to page 251 of this report of 1900, to find the date 1855, and the same old nosology of Dr. Wm. Farr which has been in use with but little change for nearly fifty years. It contains many words which have long since gone out of use and are unknown to the present generation. Every other state in the Union in which registration exists, as well as every other civilized country where it was ever used, has rejected it. Even in England, the home of its birth, this system has been so modified as to retain but little of its original character. And yet, until this year 1902, and in this report of the year 1900, no mention of any proposed change has been made.

Another relic of antiquity is the retention of county statistics. The importance of the county as a factor in statistical matters has steadily diminished during the last half-century, and that of the municipality has correspondingly increased. And yet the editorial portion of this report contains nearly thirty of these county tables, an utterly useless mass of material and a waste of printer's ink. No one ever asks for the vital statistics of counties, no one ever wants them, because they have absolutely no significance in a public document of this character.

Again, most of the tables of foreign statistics (Tables 9, 17, 28, 29 and 49) are old and out of date, being quoted second-hand from the compilations of Mayo-Smith, Newsholme and others, and not from the annual reports of the countries in question, as might easily have been done.

Secondly, the numerous and serious errors which disfigure the report make it a conspicuous example of careless editing.

The following are selected as examples :

In Table 2, page 133, all of the estimates of population from 1851 to 1890 are made by one method, and those from 1890 to 1900 in the same table are made by another method. Why this incongruity exists does not appear.

In Table 12, on page 154, the average for January and for the first quarter and first half-year in the first or upper half of the table should read 4,111, 12,230 and 24,390 instead of 4,011, 11,630 and 23,790, and the corresponding figures in the lower half of the table should read 5,824, 18,405 and 34,979 instead of 5,671, 16,895 and 33,469. Various clumsy attempts have been made in the past five years to patch this table without success.

In Table 18, page 163, are two ridiculous blunders such as Hoffman describes in his noted criticism upon these reports when he accuses the editor of blunders "which even a high school graduate trained in simple arithmetic would not be expected to make."<sup>2</sup> The editor here appears entirely oblivious of the fact that the last two columns consist of relative and not of absolute figures. Consequently neither result is correct, that of the latter column varying from the truth by at least several thousands, and the blunder is only exaggerated by the unnecessary addition of two decimal figures. The same blundering method of averaging has been employed in more than a score of other instances in the same report as well as those of its immediate predecessors.

On pages 223 and 224 a table is presented which was introduced many years ago, and as originally presented, constituted a table of great practical value, but in the present report its value has been entirely destroyed by the omission of the relative or significant figures which had invariably been published with it.

Another instance of an utterly valueless table is that upon page 212, presenting average ages at death. The average age at death depends upon the ages of the living in a given community and has no practical significance. Nantucket, Dukes and Barnstable counties have high average ages at death, simply because there is a large ratio of old people living in those counties.

By what process of reasoning the editor arrives at the conclusion that there were any exceptions to the fact that all the persons mentioned in Table 12, page 96, had been married, it is not easy to determine. No wonder that a noted physician of Worcester County says that he places the Massachusetts Registration Report upon the same shelf beside his copy of "Innocents Abroad," as affording him an infinite fund of amusement. The words "but four" on page 213 must have slipped in at the printing office. The foregoing few examples are selected out of a large number.

In another table published in one of the recent reports since 1893 a Technology student found more than 120 blunders upon a single page varying from 1 to 20% from the truth. Of what service is such a table to anyone in search of accurate figures?

The evolution of vital statistics in the older states of the Union is progressing, notwithstanding the fact that the work in Massachusetts is lagging behind. A thorough investigation of the whole subject by a board of experts, with authority to report present conditions and propose methods of improvement, would undoubtedly result in increased efficiency and economy of service.

<sup>2</sup> Boston Medical and Surgical Journal, December, 1900, p. 657.



ANNUAL REPORT OF THE MASSACHUSETTS  
GENERAL HOSPITAL.

THIS year's report of the Massachusetts General Hospital is of rather more than usual interest, owing to the recent extensive additions which have been made to the hospital and to those which are now under construction. That these additions, among which the new Out-Patient Department should take a prominent place, will materially advance the usefulness of the hospital and lead to increasingly good work is unquestioned. Certainly, the present accommodations for the large out-patient service are wholly inadequate to meet the demands of modern skilled medical diagnosis and treatment. Both physicians and patients have suffered from the lack of adequate accommodation for several years past. It is a gratification, therefore, that the trustees of the hospital have seen fit to enlarge and render practicable the dispensary work of the hospital by an adequate building, which is now under construction at an estimated cost of upwards of \$226,000. We note, also, that a new ward for the treatment of skin and other diseases at the general hospital is soon to be put into use. We have before commented on the desirability of further accommodations at this and other hospitals for the observation and care of special classes of disease, particularly those of chronic character. The beginning of this movement for a widening of the usefulness of the hospital appears to be evident in the building of this new ward.

As is usually the case, the statistics of the hospital for the year 1901 show an increase in the number of patients over the previous year. Total number treated was 5,353, as against 4,883 in 1900. The number of cases, on the other hand, treated in the Out-Patient Department, was several thousand less than in 1900, owing, it is thought, to the fact that the fear of contracting smallpox during the last months of the year was sufficient to lead those not seriously ill to avoid going to the hospital. Another statistical fact of interest, and one which is well worthy of note, is that the average number of days during which patients remained at the hospital was still further reduced from the figures of previous years. During the past year it was only seventeen days. This demonstrates the increasing tendency toward the improvement in methods of care and medical practice, and also that patients quickly curable or benefited from the great bulk of those admitted to the hospital. The hospital, therefore, is becoming more and more, from this point of view, an institution for the treatment of acute disease. The opening of a ward for diseases of the skin and other diseases may, as suggested above, do something to counteract this tendency

which, both from necessity and choice, has become firmly established.

Elaborate tables of statistics regarding the diseases treated in the general hospital occupy as usual the bulk of the report. We are glad to make note of the fact that in addition to the statistics of the house cases a report is also made of certain of the Out-Patient Departments. If great numbers constitute the value of statistics, it is to be regretted that more attention in the past has not been paid to these out-patient reports. We understand that a movement is on foot to systematize this branch of the work, which, if successfully accomplished, will certainly be of great value in the estimation of the minor forms of disease, as well as of the diseases of special branches of medicine. The latter part of the report is taken up with an admirable discussion of the needs and work of the McLean Hospital for the Insane, written by its superintendent, Dr. Edward Cowles. This department of the hospital, separated as it is by the nature of its work and by distance from the general hospital, should command the very deepest attention of all interested in medical progress. Much of the work done at this institution has been of the pioneer order, a statement which the perusal of these pages by Dr. Cowles will amply demonstrate. We look forward with assurance to a progress in this line of the hospital's work which will continue to compare favorably with the energy and progressiveness shown at the general hospital.

In general the report gives evidence of decided progress in all departments of the hospital work, which should be a source of congratulation not only to those connected with the institution, but also to the community at large, upon which the hospital is partially dependent for its continued growth.

## BULLETIN OF THE ASSOCIATION OF MEDICAL LIBRARIANS.

UNDER this title we have received an attractively printed quarterly devoted to matters relating to medical libraries. The association was organized in Philadelphia in 1898 for the express object of fostering medical libraries and maintaining an exchange of medical literature among its members. Membership to the association is open to any medical librarian or other person interested in medical libraries who shall receive the requisite number of votes of the members. Dr. William Osler is president of the association and Dr. George M. Gould vice-president. Under this leadership we may be assured that this new association, with its journal, will fill a significant place in the upbuilding of libraries relating to

medical subjects throughout the country. This first number of the *Bulletin* contains a large amount of information regarding libraries already organized. In addition to the more technical matter contained in this issue is an exceedingly interesting and readable paper by Dr. Osler on "A Visit to the Hunterian Library at Glasgow." Among other matters which are mentioned in the department of the journal devoted to "library items" is the recent departure in administration suggested by Dr. James R. Chadwick, librarian of the Boston Medical Library. Contrary to the usual custom of keeping on the shelves all editions of various medical works, Dr. Chadwick, with the consent of the executive committee, has seen fit to throw out every edition of general treatises and handbooks between the first and the last. This has led to a decided reduction in the number of books, and, it is believed, with no loss in efficiency.

The progress made in the development of medical libraries within the last few years has certainly been a very gratifying movement. The publication of a bulletin designed to keep the profession informed of changes and improvement in libraries, organized throughout the country, is a further sign of the literary tendency which is everywhere manifesting itself, and which must manifest itself more and more if medicine is to reach and maintain a proper position of dignity among the sciences.

#### MEDICAL NOTES.

**THE LIMIT OF FANATICISM.**—It is reported that a daughter of Alexander Dowie, leader of the "Zion" movement in Chicago, has recently died as a result of serious accidental burns. No physician was summoned, and the girl died after suffering intensely. The treatment consisted in continuous prayer.

**MEDICAL DEPARTMENT OF UNIVERSITY OF NEBRASKA.**—The Omaha Medical College has recently become an integral part of the University of Nebraska.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, May 28, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 32, scarlatina 21, measles 119, typhoid fever 5, smallpox 13.

**BOSTON MORTALITY STATISTICS.**—The number of deaths reported to the Board of Health for the week ending May 24 was 221, as against 278 the corresponding week last year, showing an

increase of 8 deaths, and making the death-rate for the week 20.1. The number of cases and deaths from infectious diseases is as follows: Diphtheria 35 cases, 3 deaths; scarlatina 13 cases, 1 death; typhoid fever 10 cases, no death; measles 102 cases, 3 deaths; tuberculosis 31 cases, 28 deaths; smallpox 28 cases, 6 deaths. The deaths from pneumonia were 30; whooping cough, 2; heart disease, 24; bronchitis, 4; marasmus, 5. There were 15 deaths from violent causes. The number of children who died under 1 year was 30; under 5 years, 51; persons more than 60 years, 48; deaths in public institutions, 60.

**A CENTENARIAN.**—Mrs. Nancy Washington, said to have been the oldest person in Boston, has died at the reputed age of one hundred and seven years, one month and eight days. Until this winter she enjoyed an active life and retained her faculties remarkably well. Her father was an Indian and her mother was an African. She was married six times, and most of her life was spent in the vicinity of Boston.

**OFFICERS OF NEW HAMPSHIRE.**—At the recent meeting of the New Hampshire Medical Society the following officers for the ensuing year were elected: President, I. A. Watson, Concord; Vice-President, Ezra Mitchell, Lancaster; Treasurer, M. H. Felt, Hillsboro Bridge; Secretary, Granville P. Conn, Concord; Anniversary Chairman, S. M. Dinsmoor, Keene; Necrologist, John J. Berry, Portsmouth.

**DEFEAT OF BILL TO RESTRICT VIVISECTION.**—The bill recently before a legislative committee to restrict the practice of vivisection in Massachusetts has been reported unfavorably and dismissed without argument.

**OPPOSITION TO A BOARD OF OSTEOPATHY.**—Leave to withdraw has been reported on the petition of C. E. Achorn and others for the appointment by the Governor of a board of registration in osteopathy.

#### NEW YORK.

**VERDICT FOR DEATH CAUSED BY AUTOMOBILE.**—On May 22 Frank E. Thies recovered a verdict of \$3,125 against Edward R. Thomas in the Supreme Court, in a suit for \$25,000 damages for the death of his son, seven years old, who, in February last, was run over and fatally injured by Mr. Thomas's automobile. This is the first case of the kind that has been decided in New York, and the charge of the presiding justice to the jury has attracted considerable attention as defining the statutes regarding the liability for personal injuries in such cases. In the course of it he said: Being or playing upon a street is not of itself contributory negligence in such

a child. If the automobile in question came upon the deceased under circumstances to produce fright or terror, and such fright or terror caused an error of judgment by which the boy ran in front of the automobile, the error was not contributory negligence. The mere rate of speed, whether high or low, lawful or unlawful, is immaterial, unless it entered into the cause of the accident. An automobile has the same duties to perform when meeting pedestrians or vehicles in the streets that other vehicles are subjected to. No owner or operator is exempt from liability by simply showing that at the time of the accident he did not run at a rate of speed exceeding the limit allowed by the law or the ordinances. On the contrary, no matter how great the rate of speed permitted by the latter, he still remains bound to anticipate that he may meet persons at any point in a public street, and he must keep a proper outlook for them and keep his machine under such control as will enable him to avoid a collision with another person, also using proper care and caution. If necessary, he must slow up and even stop. No blowing of a horn or whistle nor the ringing of a bell or gong, without an attempt to lower speed, is sufficient if the circumstances at a given point demand that the speed be slackened or the machine stopped, and such a course is practicable. On the other hand, every such operator of an automobile has the right to assume that every person he meets will also exercise ordinary care and caution according to the circumstances, and will not negligently or recklessly expose himself to danger.

**FUND FOR PATHOLOGICAL RESEARCH.**—The president of the General Memorial Hospital for the treatment of cancer and allied diseases, announces that Mrs. C. P. Huntington has proposed to put at the disposition of the hospital the sum of \$100,000 to constitute the "Collis P. Huntington Fund," as a memorial of her husband, the income of which is to be used for pathological research. This institution, which has very fine buildings on Central Park, West, extending from 105th to 106th Streets, which were erected and endowed from bequests from the Astor and Cullum estates, was formerly known as the New York Cancer Hospital, and Mrs. Huntington's son, Mr. Archer M. Huntington, is a member of its board of managers.

**MORE WATER.**—The citizens of the borough of the Bronx seem to think that their allowance of water is rather short, and some of them have sent to the Department of Water Supply a unique petition, in which they say: "Unless we get relief soon we may be compelled to vacate our homes. We have only to cross the road to see

monkeys and other animals enjoying an abundant supply of city water—also beautiful fountains playing—at the New York 'Zoo'; but we poor and humble taxpayers can only look on, longingly."

**NEW BUILDINGS FOR LONG ISLAND COLLEGE HOSPITAL.**—The announcement has been made that Mr. J. Rogers Maxwell of Brooklyn is to contribute \$400,000 for the construction of new buildings for the Long Island College Hospital, in memory of his brother, Henry W. Maxwell, the recent president of that institution, who gave to it altogether \$160,000 during his life and left it \$20,000 in his will. The whole work of reconstruction will, it is said, cost about \$500,000.

**VACCINATION.**—The president of the Board of Health is authority for the statement that under the present municipal administration a much larger number of vaccinations have been performed than were ever previously done in an entire year. In four months, up to May 10, the 200 vaccinators of the Health Department had vaccinated 528,865 persons. In 1901 there were 383,629 vaccinations, and in the year 1900, 147,942.

**DEDICATION OF ST. BARTHOLOMEW'S CLINIC.**—The new St. Bartholomew's Clinic, on East 43d Street, was dedicated on May 1. It is the most carefully constructed building of its kind in the city, and is thoroughly equipped with the most approved modern appliances. It differs from the ordinary dispensary in having hospital accommodations for the care of patients for a short time, when the necessities of the case require this.

**BEQUESTS TO HOSPITALS.**—Among the charitable bequests made by Miss Julia A. Low of New York, who died in April, are \$1,000 each to St. Mary's Free Hospital for Children and to the House of the Holy Comforter.

## Correspondence.

### THE QUESTION OF VACCINE VIRUS.

PHILADELPHIA, PA., May 23, 1902.

MR. EDITOR: In an editorial entitled "State Protection of Vaccine Material," which appeared in your issue of May 15, 1902, page 527, I notice my name mentioned in a manner that leaves considerable doubt as to the position which I took when called as an expert to testify before the committee of the legislature, in regard to the testing of vaccine virus. The question which was asked of me on that occasion was, whether it was possible to test the purity and efficiency of vaccine virus and whether it was expedient so to do. In my testimony, I think I showed very conclusively that by determining the number and variety of bacteria contained in the virus, with the addition of animal inoculations made with the virus, it was possible to

determine the purity, or, rather, relative purity (as there can be no absolute purity) of the virus. I also showed that the efficiency of the virus could be satisfactorily tested upon rabbits and calves, and that a more certain method of determining the exact efficiency of the virus was upon the human arm. I think I not only showed the possibility of these procedures but also their imperative necessity, and at that time I mentioned the fact that the occurrence of a number of cases of tetanus strikingly indicated that carelessness in testing the vaccine was culpable. What I said was dilated upon by Dr. Huddleston of New York, who mentioned the fact that the New York Board of Health invariably tested its vaccine virus upon a human arm before permitting its general use.


Regarding the question of tuberculous cattle and vaccine virus, no such statement was made as that which you attribute to us, "that any old cow will answer the purpose." It was explicitly stated that sucking calves were for many reasons to be preferred, and we did say, what is perfectly true, that the probability of undiscovered tuberculous disease in a calf, causing serious or dangerous contamination of vaccine virus, is very improbable, and that, so far as we know, in no case have tubercle bacilli ever been discovered in vaccine virus, the natural conditions existing in tuberculosis being opposed to the occurrence of tubercle bacilli in the virus. None but tested animals, known to be healthy, should be employed for the manufacture of vaccine virus, and after the animals have been used for the purpose they should invariably be slaughtered and their bodies examined, in order that they may be known to be healthy before the virus was used. The wording of your editorial would make it appear that Dr. Huddleston and myself appeared before the committee possessed of facts which we purposely suppressed, and with the object of preventing the people of the State of Massachusetts being protected by any guarantee concerning the vaccine virus with which they are furnished. Whereas, in reality, the very object for which we were called, and concerning which we were interrogated, concerned the possibility of the State of Massachusetts protecting itself and securing the most satisfactory guarantees concerning its virus (1) by employing viruses which commercial competition require to be manufactured under the very best possible conditions, and (2) by adopting measures in their already existing laboratories by which the most careful investigation as to the quality of these viruses can be carried out.

Very respectfully yours,

JOSEPH MCFARLAND, M.D.

#### METEOROLOGICAL RECORD

For the week ending May 17, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.		Relative humidity.		Direction of wind.		Velocity of wind.		We'th'r *		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.		
S...11	30.20	48	58	39	49	61	55	N W	S E	12	8	C.	C.
M...12	30.19	53	62	44	66	59	62	E W	S W	7	16	O.	O.
T...13	29.96	56	67	46	87	35	61	W	N	8	12	O.	C.
W...14	30.02	53	65	41	45	60	52	W	S W	14	6	F.	O.
T...15	30.15	52	56	48	62	59	60	N E	S	9	10	O.	C.
F...16	30.04	59	72	46	55	34	44	S E	W	10	6	O.	C.
S...17	29.92	60	70	51	45	77	61	N W	E	5	6	C.	C.
	30.07		64	45			56						

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
 ☞ Mean for week.

#### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 17, 1902.

CITIES.	Population Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from				
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Cerebro spinal meningitis.
New York.	3,665,352	1,286	423	25.81	17.73	3.73	.62	.16
Chicago.	1,852,828	471	118	27.60	16.35	1.27	2.33	—
Philadelphia.	1,349,624	396	108	25.25	9.59	3.28	2.77	—
St. Louis.	603,717	—	—	—	—	—	—	—
Baltimore.	625,330	167	47	22.80	19.20	.60	1.80	.80
Cleveland.	411,826	—	—	—	—	—	—	—
Buffalo.	375,742	—	—	—	—	—	—	—
Pittsburg.	341,401	148	44	33.10	11.48	—	9.45	—
Cincinnati.	332,032	—	—	—	—	—	—	—
Milwaukee.	304,975	—	—	—	—	—	—	—
Washington.	289,537	—	—	—	—	—	—	—
Providence.	185,870	76	23	23.68	9.21	—	1.31	—
Boston.	588,730	204	58	21.07	21.07	.98	.49	.49
Worcester.	127,337	29	—	10.34	6.89	—	—	3.44
Fall River.	111,872	31	11	28.98	9.66	—	—	—
Lowell.	99,574	23	4	4.34	13.04	4.34	—	—
Cambridge.	96,334	24	8	25.00	12.50	4.16	—	—
Lynn.	71,144	22	—	18.16	13.65	9.08	—	—
Lawrence.	67,275	12	2	8.32	16.67	—	—	—
Springfield.	66,854	14	1	14.28	14.28	—	—	—
Somerville.	65,882	9	4	11.11	22.22	—	—	—
New Bedford.	65,574	23	7	21.71	17.32	4.34	4.34	—
Holyoke.	48,065	14	5	21.42	7.14	14.28	—	—
Brookton.	43,208	9	—	11.11	—	—	—	—
Haverhill.	40,392	14	3	35.70	14.28	—	7.14	—
Salem.	36,567	10	—	—	30.00	—	—	—
Newton.	36,336	9	3	22.22	11.11	—	—	—
Malden.	35,390	14	2	14.28	—	7.14	—	—
Chelsea.	35,264	13	—	—	—	—	—	—
Fitchburg.	33,848	9	1	22.22	—	—	—	—
Taunton.	32,759	11	1	18.18	18.18	—	—	—
Everett.	27,114	6	—	33.33	—	—	—	—
North Adams.	26,583	4	2	—	25.00	—	—	—
Gloucester.	26,121	12	1	16.67	16.67	—	—	—
Quincy.	25,307	7	3	14.30	14.30	—	—	—
Waltham.	24,612	10	2	10.00	10.00	—	—	—
Pittsfield.	22,311	5	—	20.00	40.00	—	—	—
Brookline.	21,679	5	—	20.00	—	—	—	—
Chicopee.	20,390	12	10	—	8.33	—	—	—
Medford.	20,014	7	3	42.90	14.30	—	—	—
Newburyport.	14,478	—	—	—	—	—	—	—
Melrose.	13,384	6	—	33.33	16.67	—	—	—
Westfield.	13,088	3	—	—	—	—	—	—
Attleboro.	12,846	—	—	—	—	—	—	—
Adams.	12,813	—	—	—	—	—	—	—
Milford.	12,516	—	—	—	—	—	—	—
Framingham.	12,109	5	—	20.00	—	—	—	—
Peabody.	11,957	—	—	—	—	—	—	—
Revere.	11,894	4	2	—	50.00	—	—	—
Gardner.	11,544	3	—	33.33	—	—	33.33	—
Weymouth.	11,337	8	—	—	—	—	—	—
Southbridge.	10,638	—	—	—	—	—	—	—
Watertown.	10,600	2	1	—	—	—	—	—
Plymouth.	10,336	—	—	—	—	—	—	—

Deaths reported 3,166; under five years of age, 903; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 783, acute lung diseases 491, consumption 384, scarlet fever 51, erysipelas 9, typhoid fever 53, whooping cough 29, cerebrospinal meningitis 6, smallpox 19, measles 50, diarrheal diseases 87.

From whooping cough, New York 15, Chicago 7, Baltimore 5, Pittsburg 1, Boston 1. From measles, New York 19, Chicago 7, Philadelphia 2, Pittsburg 15, Boston 2, Haverhill 3, Cambridge 1, Lynn 1. From erysipelas, New York, Chicago, Philadelphia and Boston 2 each, Pittsburg 1. From smallpox New York 7, Chicago 1, Philadelphia 1, Pittsburg 2, Boston 6, Somerville 1, Everett 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending May 3, the death-rate was 16.6. Deaths reported 4,724; acute diseases of the respiratory organs (London) 240, whooping cough 138, diphtheria 63, measles 98, smallpox 64, scarlet fever 48.

The death-rate ranged from 7.6 in Hornsey to 25.5 in St. Helens; London 15.7, West Ham 16.1, Croydon 15.5, Brighton 14.7, Portsmouth 14.4, Southampton 13.1, Bristol 15.4, Birmingham 18.7, Leicester 14.5, Nottingham 12.7, Birkenhead 16.7, Liverpool 22.0, Manchester 17.4, Salford 17.7, Bradford 19.1, Leeds 17.9, Sheffield 15.5, Hull 18.2, Newcastle-on-Tyne 20.5, Cardiff 18.5.

# CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MAY 10, 1902.

W. S. DIXON, medical director. Detached from duty on the retiring and medical examining boards, Washington, D.C., and ordered to continue other duty.

W. A. McCLURG, medical inspector. Detached from the "Kearsarge" upon reporting of relief, and ordered to the "Olympia," for duty as fleet surgeon of the North Atlantic Station.

J. C. BOYD, medical inspector. Detached from the "Olympia," upon reporting of relief, and ordered to Washington, D.C., for duty as a member of the retiring and medical examining boards.

J. M. STEELE, surgeon. Detached from the Torpedo Station, Newport, R. I., upon reporting of relief and ordered to the "Massachusetts."

H. E. AMES, surgeon. Detached from the "Massachusetts," upon reporting of relief, and ordered to the "Kearsarge."

J. J. SNYDER, assistant surgeon. Detached from duty with recruiting party, when discontinued, and ordered to the Torpedo Station, Newport, R. I., temporarily.

J. E. PAGE, passed assistant surgeon. Granted sick leave for two months.

J. C. PRYOR, passed assistant surgeon. Ordered to the "Massachusetts," May 14.

I. N. HURD, pharmacist. Detached from the "Wabash" and ordered to duty at the Navy Yard, Portsmouth, N. H.

FOR THE WEEK ENDING MAY 17, 1902.

W. F. ARNOLD, surgeon. Detached from duty at Guam, and ordered to the Naval Hospital, Yokohama, Japan, for treatment.

W. H. BELL, assistant surgeon. Detached from the Naval Hospital, Norfolk, Va., and ordered to duty on board the "Chesapeake," when that vessel goes in commission.

E. M. BROWN, H. F. SHRINE, J. P. TRAYNOR, and R. E. HOYT, doctors. Appointed assistant surgeons, May 8, 1902.

FOR THE WEEK ENDING MAY 24, 1902.

Orders by Commander-in-Chief, Asiatic Station:

W. E. GRIFFIN and C. M. OMAN, assistant surgeons. Reported at Cavite, P. I., May 12 and May 2 respectively.

R. P. CRANDALL, surgeon. Detached from recruiting duty and ordered to San Francisco, Cal., and thence to Guam, L. I.

M. K. JOHNSON, passed assistant surgeon. Order of Oct. 5, 1901, modified; detached from duty at Guam upon reporting of relief, and ordered home to wait orders.

J. G. FIELD, assistant surgeon, retired. Ordered to recruiting duty.

D. B. KERR, passed assistant surgeon. Detached from the "Wabash" and ordered to the Boston Navy Yard.

R. E. HOYT, assistant surgeon. Ordered to the "Wabash."

J. P. TRAYNOR, assistant surgeon. Ordered to the Naval Hospital, New York.

J. F. SHRINE, assistant surgeon. Ordered to the Naval Hospital, Norfolk, Va.

## RECENT DEATHS.

ALBERTO FRANCIS FERNALD, M.D., M.M.S.S., died in Shirley Feb. 17, 1902, age thirty-three years.

WILLIAM HENRY ANDREWS, M.D., M.M.S.S., died in Springfield May 19, 1902, age forty-seven years.

## BOOKS AND PAMPHLETS RECEIVED.

Massage and Movements in Hemiplegia. By Douglas Graham, M.D. Reprint. 1902.

La Fototerapia del Dott. Antonino Sciascia. Società Editrice Dante Alighieri. 1902.

Dynamic Aspects of Nutrition and Heredity. By Frank Horridge. New York: William Wood & Co. 1902.

The Peritoneum. By Byron Robinson, B.S., M.D. Part I. Illustrated. Chicago: Chicago Medical Book Co. 1899.

Twenty-first Annual Report of the State Board of Health of New York for the Year ending Dec. 31, 1900. Maps. Albany. 1901.

Acute Dilatation of the Stomach. By H. Campbell Thomson, M.D. (Lond.), M.R.C.P. New York: William Wood & Co. 1902.

Diagnosis of Medical and Surgical Diseases of the Liver and Biliary Passages. By John Herr Musser, M.D., of Philadelphia. Reprint. 1900.

Marrow and Spleen Cells, Considered in Their Relation to the Blood-Cells. By Edward T. Williams, M.D., of Boston, Mass. Reprint. 1902.

Transactions of the Chicago Pathological Society. From October, 1899, to June, 1901. Vol. IV. Chicago: American Medical Association Press. 1902.

Health, Speech and Song. A Practical Guide to Voice-Production. By Jutta Bell-Ranske. Illustrated. New York: E. P. Dutton & Co. 1902.

Hernia: Its Etiology, Symptoms and Treatment. By W. McAdam Eccles, M.S. (Lond.), F.R.C.S. (Eng.). Second edition. New York: William Wood & Co. 1902.

Thirty-third Annual Report of the Secretary of State on the Registration of Births and Deaths, Marriages and Divorces in Michigan for the Year 1899. Edited by Cressy L. Wilbur, M.D. 1902.

Principles of Sanitary Science and the Public Health with Special Reference to the Causation and Prevention of Infectious Diseases. By William T. Sedgwick, Ph.D. New York: The Macmillan Co. 1902.

A Manual of Surgical Treatment. By W. Watson Cheyne, M.B., F.R.C.S., F.R.S., and F. F. Burghard, M.D. and M.S. (Lond.), F.R.C.S. In seven volumes. Vol. VI. Philadelphia and New York: Lea Brothers & Co. 1902.

Saunders' Medical Hand-Atlases. Atlas and Epitome of Otology. By Gustav Brühl, M.D., with the collaboration of Prof. Dr. A. Politzer. Authorized translation from the German. Edited by S. MacCuen Smith, M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

Saunders' Medical Hand-Atlases. Atlas and Epitome of Operative Surgery. By Dr. Otto Zuckerkandl. Second edition, revised and enlarged. Authorized translation from the German. Edited by J. Chalmers Da Costa, M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

Quain's Dictionary of Medicine. By various writers. Third edition, largely rewritten and revised throughout. Edited by H. Montague Murray, M.D., F.R.C.P., assisted by John Harold, M.D., B.Ch., B.A.O., and W. Cecil Bosanquet, M.A., M.D., M.R.C.P. Illustrated. New York: D. Appleton & Co. 1902.

A Reference Handbook of the Medical Sciences, embracing the entire range of Scientific and Practical Medicine and Allied Science. By various writers. A new edition, completely revised and rewritten. Edited by Albert H. Buck, M.D. Volume IV. Illustrated. New York: William Wood & Co. 1902.

State of Connecticut Public Document Nov. 25. Twenty-fourth Annual Report of the State Board of Health of the State of Connecticut for the year 1901, with the Registration Report for 1900 relating to Births, Marriages, Deaths and Divorces. Printed by order of the Legislature. New Haven: The Tuttle, Morehouse & Taylor Co. 1902.

The Climates and Baths of Great Britain. Being the Report of a Committee of the Royal Medical and Chirurgical Society of London, C. Theodore Williams, M.D., chairman, P. Horton-Smith, M.D., honorary secretary. Vol. II. Wm. Ewart, M.D., and nine other Contributors. London: Macmillan & Co. (Ltd.); New York: The Macmillan Co. 1902.

The Operations of Surgery, intended especially for the use of Those Recently Appointed on a Hospital Staff and for Those Preparing for the Higher Examinations. By W. H. A. Jacobson, M.Ch. (Oxon.), F.R.C.S., and F. J. Steward, M.S. (Lond.) F.R.C.S. Fourth edition. Illustrated. Vols. I and II. Philadelphia: P. Blakiston's Son & Co. 1902.

International Clinics, a Quarterly of Clinical Lectures and especially prepared Articles on Medicine, Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and other Topics of Interest to Students and Practitioners, by leading members of the Medical Profession throughout the World. Edited by Henry W. Cattell, A.M., M.D., with the collaboration of John B. Murphy, M.D., Alexander D. Blackader, M.D., H. C. Wood, M.D., T. M. Rotch, M.D., E. Landolt, M.D., Thomas G. Morton, M.D., Charles H. Reed, M.D., J. W. Ballantyne, M.D., and John Harold, M.D., with regular correspondents in Montreal, London, Paris, Leipzig and Vienna. Vol. IV. Eleventh Series, 1902. Illustrated. Philadelphia: J. B. Lippincott Co. 1902.

## Original Articles.

## CYSTOSCOPIC APPEARANCES IN NON-TUBERCULAR CYSTITIS AND PYELONEPHRITIS IN WOMEN.

BY EDGAR GARCEAU, M.D., BOSTON,

*Surgeon to Out-Patients in St. Elizabeth's Hospital and in the Free Hospital for Women, Boston.*

WITHOUT going too deeply into the subject of urinalysis it will be interesting to give the results of Brown's<sup>1</sup> careful investigations on the subject as to the relation that the urine has to the species of bacterium causing the inflammation.

## ACUTE CYSTITIS, TWENTY-SIX CASES.

*Bacillus coli communis*, fifteen times; acid urine.

*Bacillus staphylococcus albus*, five times, and *aureus* two times; urine usually acid, but less so than normal.

*Bacillus pyocyaneus*, once; reaction not taken

*Bacillus typhosus*, once; reaction not taken.

*Bacillus proteus vulgaris*, once; urine alkaline and ammoniacal.

## CHRONIC CYSTITIS, TWENTY-FIVE CASES.

*Bacillus coli communis*, fifteen times (eleven times alone and four times with pyelitis); urine always distinctly acid, usually markedly so.

*Bacillus staphylococcus albus* and *aureus*, two and three times respectively (cystitis alone); urine on some occasions neutral, exceptionally slightly alkaline in the case of *staphylococci aureus*.

*Bacillus staphylococcus albus* (slowly liquefying), four times (two each of cystitis alone, and cystitis with pyelitis); urine alkaline; decomposed urea quickly.

*Bacillus proteus vulgaris*, once; urine sometimes acid or neutral or alkaline.

## CHRONIC PYELITIS AND PYELONEPHRITIS, ELEVEN CASES.

*Bacillus coli communis*, six times; urine always acid.

*Bacillus proteus vulgaris*, three times; urine always alkaline on affected side, acid on normal side, and either acid, alkaline or neutral in bladder.

*Bacillus staphylococcus albus* (slowly liquefying), two times; urine alkaline.

It will thus be seen that the urine is always acid when the *bacillus coli communis* is the germ present, whether the inflammation is in the kidney, bladder or in both organs. Clinical experience carries this out, for it is the exception almost that urine in a case of chronic cystitis in women is found to be alkaline. In the case of tuberculosis the same is true, the urine almost always being found acid, unless there is a mixed infection late in the disease. An alkaline urine when met with may be expected to be associated with either the *bacillus proteus vulgaris* or the

*staphylococci*. This constitutes a diagnostic point of some value with reference to the kind of calculi found in the kidneys, for Brown<sup>2</sup> also discovered that the uric acid and urate calculi are apt to be associated with the *coli communis*, while the phosphate and carbonate of magnesium and calcium are more apt to be present with the alkaline-producing bacteria.

## CYSTOSCOPIC APPEARANCES.

The cystoscopic appearances in the case of acute cystitis are those seen in inflammation of mucous membranes in other parts of the body. It is probable that the appearances do not differ, no matter which germ has caused the disease. In chronic cystitis, also, Brown is of the opinion that the germ does not have any relation with the visual appearances.

In a case seen in consultation, the author had the opportunity of examining an acutely inflamed bladder. The patient, a woman, had been operated upon for retroversion by the anterior vaginal method, and during the course of the operation the bladder had been accidentally opened. Acute cystitis followed. Through the cystoscope the whole bladder was seen to be intensely red, and the mucous membrane swollen and evidently elevated above the normal level. Flakes of fibrin were scattered about here and there. Individual large blood vessels were seen to be much larger than normal, but the fine reticulum of smaller blood vessels was entirely lost in the general edema. The ureteral eminences could not be identified on account of the swelling. The vesical neck and urethra partook of the general inflammation.

The visual appearances of chronic cystitis vary considerably with the extent of the urinary tract involved, and for purposes of clearness it is proposed to divide the subject into two classes. The first class will comprise those cases in which the bladder alone is involved, and the second, those in which the upper urinary passages as well as the lower are implicated.

## CASES IN WHICH THE BLADDER ALONE IS INFLAMED.

The normal bladder in a state of health presents a grayish yellow appearance by reflected light. Ramifying over its surface are numerous arteries and arterioles which, when seen through the cystoscope, present an appearance not unlike that observed with the ophthalmoscope of the retinal vessels of the eye. The trigone vesical neck and urethra have a pinkish or even a red color; likewise the ureteral eminences, which always stand out prominently and are easily recognized. Inflammations of the bladder may produce within it lesions of three kinds, namely, ulcers, patches of intense redness, and lastly a general diffuse redness. In addition to these, however, there is a fourth alteration which is observed in cases of long standing vesical ulceration. Reference is made to cicatricial contraction, seen frequently as the end result of violent inflammation.

<sup>1</sup> Johns Hopkins' Hospital Reports, 1901, vol. x, Nos. 1 and 2.<sup>2</sup> Johns Hopkins' Hospital Reports, 1901, vol. x, Nos. 1 and 2.



Whether or not this contraction is due alone to cicatricial influences, or whether it may not also, in part at least, be the result of muscular hypertrophy due to constant tonic spasm, is uncertain. There seems to be good ground for supposing that the latter hypothesis may be correct.

If the inflammation has extended through the vesical walls we may sometimes have pericystitis with consequent adhesions to the surrounding pelvic walls or contiguous organs. This is a rare pathological change.

It is by no means uncommon for the ulcer and the patch to coexist, or for a diffuse inflammation to be associated with ulcerations. Various combinations may be observed. Ulcerations are always associated with some form of arterial engorgement. Occasionally ulceration has destroyed the whole vesical mucous membrane, and in such a case the cystoscope reveals a smooth, glistening, pyogenic membrane with white lines of scar tissue here and there, with occasional red patches. Such an event is liable to occur in both the tubercular and non-tubercular inflammations.

*The ulcer.*—Ulcers of the bladder of the non-tubercular type are quite uniform in appearance. In size they seldom exceed 1 to 2 cm. in diameter, although they may likewise be much larger. Kelly<sup>5</sup> describes a linear ulcer seen by him on the posterior wall of the bladder between the ureteral orifices; it appeared as a yellowish white surface 3 mm. broad and 3 to 4 cm. in length, surrounded by an area of intense injection. Such shapes must be rare, for generally the ulcer is circular or irregularly circular in outline. All ulcers are surrounded by areas of injection, which may be great or slight in degree. It is seldom that the ulcer extends deeply into the underlying tissue, and when it does, tuberculosis may be suspected. This is not always so, however, for at times the non-tubercular ulcer is of appreciable depth. The base of the ulcer is yellow or yellowish white in color and is usually smooth, but occasionally it is shaggy and sloughy, and necrotic shreds may be seen clinging to its surface. In the neighborhood the individual blood vessels are always dilated and have the appearance as if proceeding from it. The posterior wall of the bladder just above the trigone is frequently the site of these ulcerations, and less often the anterior wall. When situated on the trigone, probably on account of the harder tissue, they have a more excavated appearance and the areola of injection likewise is seen to be more intense. Ulcers are occasionally found at the summit of the bladder, but this is very rare.

As to the frequency with which ulcers occur in chronic cystitis of a non-tubercular nature, if we look at the table of cases we find that in the twenty cases ulcers occurred twelve times. In these twelve cases the ulceration was observed on the posterior wall alone, above the trigone, five times; on both anterior and posterior wall coincidentally, three times; never on the anterior

wall alone; on the trigone alone, three times; just to the inner side of the ureteral orifice, once, and finally, in five cases there were no ulcerations seen at the time the patient was under observation.

Fenwick<sup>4</sup> has described, under the title "Simple, Solitary Ulcer," a condition which he has observed in a few cases. It is a rare disease, he claims, and it has certain characteristics which seem to entitle it to a description by itself. The similarity which exists between the simple solitary ulcer and the stomach ulcer is most striking. Both are solitary; both have situations near an orifice, the gastric near the pylorus on the posterior wall (76%), the vesical near a ureteral orifice on the posterior wall; both may originate in lymph nodules; in both the chief symptom is hemorrhage (75.4% in gastric ulcer); both tend to result in the formation of scar tissue with puckering of the surrounding mucous membrane. Nothing definite is known of the etiology of the simple, solitary ulcer. It is possible that in women the pressure of the child's head in parturition, with concomitant accidental infections, due to rough and unclean catheterization, may have something to do with the origin of the disease, and Fenwick states that he has never seen the affection in nulliparæ. In the author's case<sup>6</sup> parturition and retention of urine were the undoubted cause. What influence in this case the pressure of the child's head, and what influence the exfoliative cystitis had in causation is a matter of conjecture.

The question is still an open one, so Fenwick says, whether these ulcers are not unrecognized tubercular ulcers. The visual characteristics are most similar, and the only vital point which separates them from the tubercular class is failure to find the tubercle bacillus.

The visual aspects of the ulcer are these: It is always situated on the posterior wall of the bladder just to the inner side of a ureteral orifice, never encroaching upon the trigone. In size it does not exceed 4 or 5 cm. in diameter, and in outline it is circular or irregularly circular. The edges are raised and are a little thickened. The ulceration is superficial and extends almost to the muscular coat. The base is uneven and sloughy and is covered with necrotic tissue. It possesses exquisite sensitiveness. Eventually lime salts are deposited upon the ulcers, and when this occurs the gradual accumulation is proceeded with until the topmost layer is cast off and may be found in the urinary sediment as a scale. These scales possess many characteristics in common with the scales found in epitheliomatous disease of the bladder, and in calculous disease of the kidney; contact ulcers are sometimes found on the anterior wall of the bladder opposite the site of the solitary ulcer, and these secondary ulcers are due to the irritation of the rough phosphatic concretion: the secondary ulcers may likewise in time become encrusted

<sup>4</sup> E. Hurry Fenwick: *Ulceration of the Bladder: Simple, Tubercular and Malignant*. London, 1900, p. 6.

<sup>6</sup> See Case XX.

<sup>5</sup> *Operative Gynecology*, 1898, 1, 365.

with lime salts. Cicatrization is the tendency in the history of the disease, but it takes a long time if treatment has not been instituted, for the process is retarded by the deposition of the lime salts. When healing has taken place contraction accompanies it, and as a result the bladder is thrown into folds which radiate from the original site of the ulceration as a centre: in appearance these folds resemble carcinomatous degeneration, especially if there is ulceration on top of them, which sometimes, though rarely, supervenes.

The forgoing are Fenwick's views on the subject, and as it is such an important one, a few words more may be added with reference to the differential diagnosis of the affection. In the case reported (Case XX) there was a well-recognized exciting cause, and there is no doubt whatever that tuberculosis could be excluded both from this fact and from others as well. Tubercular ulcers rarely have the deposition of lime salts upon them, while in Fenwick's ulcer this appears to be the rule. The location always in one spot is unusual, for in tuberculosis, ulcerations are found in any part of the bladder. The amenability to treatment is likewise suggestive, for in tuberculosis this result is not always attained. Too much stress cannot be placed on the fact that miliary tubercles are absent, for it is well known that the solitary tubercle may occur in the bladder, as in other parts of the body. As to visual aspects, barring out the deposition of lime salts, the two forms of ulcer are precisely similar. The positive diagnosis cannot be made unless the germ is isolated, and to this end the guinea-pig test may prove of value; likewise excision of a bit of the edge of the ulcer, which is easily done through the cystoscope. Paraffine sections of such a bit of tissue may show the bacilli.

*The patch.*—In the form of cystitis, in which patches of inflammation occur, these lesions may be readily recognized through the cystoscope. The patches are generally not larger than 2 or 3 cm. in diameter, and present an irregularly circular outline, although other shapes are also met with. In color the patch is intensely red, dull in appearance, and surrounding it the contiguous blood vessels are seen to be greatly distended. The patch itself represents the usual changes accompanying inflammation of mucous membranes. A piece of tissue excised from a patch in one of the cases described showed ordinary inflammatory changes: the superficial squamous epithelium was desquamated, and there was an intense round-cell infiltration which extended into the subjacent tissues; the blood vessels were all dilated.

Some authors have described these patches as ecchymoses: this is erroneous, as an ecchymosis consists of an infiltration of blood in the cellular tissue. There is no such lesion in the vesical patch of inflammation.

Usually the patches are found on the posterior wall, but they may also be observed on the anterior wall as well. They were found in the series given eight times in the twenty cases.

*Diffuse general inflammation.*—In this form of cystitis the whole mucous membrane of the bladder is involved. The membrane is diffusely red throughout, and appears as a smooth surface with or without ulcerations and patches. On the trigone and eminences the infection is somewhat more intense, and the vesical neck and urethra also show a marked degree of infection. The large individual blood vessels of the bladder stand out boldly on the surface as well as the smaller ones, which are usually invisible in the normal state. The general appearance of the bladder is dull-looking, which is to be expected when one considers the pathological changes, desquamation and round-cell infiltration.

Besides the appearances just described—the ulcer, the patch and diffuse inflammation—we may mention the occurrence of small granulations on the surface of an inflamed bladder. These are small elevations which rise above the surface, not more than 1 or 2 mm. in height, and about the same in diameter. In appearance they are red and shiny, and resemble granulations seen on the surface of the body in an open wound. They are of relatively infrequent occurrence.

The swelling of the lymph nodules is also sometimes seen in cases of severe cystitis. In the normal bladder these nodules are never seen, as they are even with the general vesical surface and have the same color as that of the surrounding tissue. But with an intense degree of cystitis which has lasted a long time, such as is sometimes seen in calculous disease of the kidney, these nodules swell up and appear in the bladder in great numbers. They are small bodies not more than 2 or 3 mm. in diameter, slightly elevated above the surface, of whitish translucent appearance, resembling sago grains. They have no significance beyond the fact that they represent a severe infection. They disappear when the cystitis subsides.

In all forms of cystitis the lesions are most frequently found on the posterior wall, either on the trigone or just above it. The trigone itself is always intensely injected, as well as the vesical neck and generally the urethra. It is intense injection with the consequent hypersensitiveness of the nerve endings that gives rise to the symptom increased frequency of micturition.

Among the rarer forms of vesical diseases may be mentioned what Kelly describes as "loculate bladder." Case I is an example of the disease<sup>\*</sup> observed by the author. In this case the whole bladder was much injected and presented a velvety appearance with small superficial yellowish ulcers scattered about here and there. The bladder wall had several circular openings in it about  $\frac{1}{2}$  to 1 cm. in diameter, leading into small saccules or locules 1 cm. in depth, and which undermined the bladder wall for a very short distance underneath it (not more than 2 or 3 mm. all around the saccule). The pockets had smooth, shining

<sup>\*</sup> See cases in which the bladder and upper urinary tract are involved.

interiors, and secreted a white mucus mixed with pus. In this case infection had taken place, and the whole bladder was inflamed as well as the right renal pelvis and ureter. The infection was undetermined.<sup>7</sup> The urine was alkaline.

Kelly<sup>8</sup> says that these locules are due to a defect in the development of the muscular wall of the bladder, and that, as a result, the mucosa is forced out between the muscles during contraction. Kelly further observes that these bladders are liable to be mistaken for supernumerary bladders of congenital origin. Such pockets may also be mistaken for similar pockets, the result of inflammatory disease, and which occasionally form a resting-place for calculi. Kelly<sup>9</sup> has seen two cases of loculate bladder. The first was a case in which there was a single opening situated above and posterior to the ureteral orifice on the right side. In the other case there were several openings in front of the broad ligaments; in this case the pits were from 3 to 8 to 10 mm. in diameter. He does not speak of their undermining the rest of the bladder wall, and there was no infection. Kelly says that loculate bladder may be readily distinguished from the pits left by inflammatory processes by the absence of scar tissue, which is hard and unyielding to the probe, while in loculate bladder the membrane is soft and yielding. Loculate bladder, not infected, requires no treatment, but if cystitis attacks such a bladder it is very difficult to cure, because of the recesses in the pockets, into which the disinfecting antiseptic solutions do not penetrate.

(To be continued.)

### SOME PROBLEMS CONCERNING VENEREAL DISEASES.<sup>1</sup>

BY MARSHALL H. BAILEY, M.D., CAMBRIDGE, MASS.

WHILE zeal in the study of other diseases must not be retarded, may we not hope to see the time when a still greater interest will be manifested in two diseases which are not only loathsome and deadly in their nature but demoralizing as well?

Dr. F. H. Hamilton of New York, in his "Principles and Practice of Surgery," states that their poisons have become so widespread and have contaminated the blood of so large a portion of the human race that in his opinion they are today retarding the physical and intellectual progress of man.

In 1874 Dr. F. R. Sturgis read before the American Public Health Association a paper on "The Relations of Syphilis to the Public Health," in which he estimates that out of a population of 942,292 persons 50,450 were suffering from syphilis in New York City (1:18.5), and adds: "I believe this number to be under, rather than above, the true amount." On June 3 of the same year,

<sup>1</sup> Isolation of the germs—there were two—now being done.

<sup>8</sup> Operative Gynecology, 1897, I, 317.

<sup>9</sup> Loc. cit., 1897, I, 318.

<sup>1</sup> Read before the Middlesex South District Medical Society, Jan. 21, 1902.

Dr. Gross of Philadelphia read a paper before the American Medical Association in Detroit, in which he estimated that in the United States one person in every twenty was infected with syphilitic virus.

According to Fournier, one-seventh of the population of Paris is syphilitic, and Morrow (from statistics gathered in New York) believes it is quite possible that Fournier's figures, with some modification, may apply to New York City.

For obvious reasons, the statistics of venereal diseases as related to the general public, unlike those for other contagious diseases, cannot be accurately computed, or, at least, never yet have been. In the army and navy, however, we may find data of definite scientific value. Sir H. S. Cunningham's report of the health of the British Army in India for the year 1895 shows that there were 36,881 hospital cases of venereal disease among 68,331 soldiers. This is a per cent. of 53.7, nearly half of which were syphilis (25.9%). Moreover, these figures do not represent the entire number of venereal diseases, numerous cases having been treated outside of the hospital. Further, the report shows that of the 13,000 annually sent home from India 25% are syphilitic. The recent report of Surgeon-General Sternberg for the American Army is of equal interest.

Of the horror and injustice of hereditary syphilis, to this professional audience there is no need to detail. Syphilis in all its phases is a disease dreaded by both laity and profession, but the importance of gonorrhea is ignored by the former and too lightly regarded by some of the latter. Will you pardon me if I take the time to state the opinions of a few leaders in our profession relative to gonorrhea? First, let me quote from Osler: "Gonorrhea, one of the most widespread and serious infective diseases, presents many features for consideration. As a cause of ill health and disability the gonococcus occupies a position of the very first rank among its fellows. While the local lesion is too often thought to be trifling, in its singular obstinacy, in the possibilities of permanent sexual damage to the individual himself, and still more in the grizzly troop which may follow in its train, gonorrheal infection does not fall very far short of syphilis in its importance." Neisser holds that gonorrhea is, with the exception of perhaps measles, the most widespread of all diseases. Other German authorities have computed that fully three-fourths of the adult male population and one-sixth or more of the adult females have contracted gonorrhea; that 80% of all deaths from disease of the uterus and its appendages is of gonorrheal origin. Leaving prostitutes out of the question, gonorrhea attacks a large number of reputable women. Sanger found out of 1,930 such women 12% infected with gonorrhea. Other authorities, notably Noeggerath, place the percentage much higher. It is a conservative estimate that 10 to 20% of pure women are infected with some sort of gonorrhea after marriage, so "that a license to marry may be a death warrant to a confiding

bride." Neisser believes that gonorrheal infection of the male is responsible for one-third of the sterile marriages, and that gonorrhea is even a more potent factor than syphilis in the depopulation of countries.

Every physician knows the gravity of blenor-rhea neonatorum. Holt of New York states that the best statistics show 26 to 30% of blindness in adults due to gonorrheal infection of the eye in the newborn infant. This has been estimated to be 40 to 60% before the adoption of Credé's method of treatment. Dr. Burnett of Georgetown University believes that 15,000 of the 50,000 blind in the United States lost their sight from this cause, which, according to his calculation, involves a financial loss to the commonwealth of \$7,500,000 annually. When we add the cases of stricture, of epididymitis, endocarditis and joint affections caused by the gonococcus, it is easy to feel the truth of the opinion first quoted from Osler.

To my mind, these facts prompt especially the following questions:

- (1) What are the causes of these conditions?
- (2) Is it right that they should continue?
- (3) If not right, then what can be done about it?

In answer to the first question, is not the male led to indulgence of his passions by three factors?

- (a) By the strength of the sexual appetite common to every man?
- (b) Selfishness—the fact that he ignores the moral and physical welfare of the girl who gratifies him?
- (c) Ignorance—in that he has never learned true manhood, that chastity pays better than vice, that illicit satisfaction may have concealed in it great present dangers to himself and future ill for his wife and children?

Statistics and observation show that the female rarely adopts a profligate life to satisfy desire, but largely because she is driven to it through want, by seduction, perhaps by love of dress, and, like the male, through ignorance.

There being only one possible answer to the second question, we will take up the third, the consideration of which will occupy the balance of this paper.

If not right, then what can be done about it? In order to profit by the experience of others, we are naturally led to inquire: What has been done about it? A study of its history will show that effort has been directed especially as follows:

- (1) The suppression of prostitution.
- (2) The regulation of prostitution.
- (3) The treatment of disease.

First, what has history taught us about the suppression of prostitution? In 1254 Louis IX directed that prostitutes should be exiled from the kingdom. This edict was partially put in force. "A large number of unfortunate females were seized and imprisoned or sent across the frontier. Severe punishments were inflicted on those who

returned to Paris after their expulsion. A panic seized the customers of brothels, and for a few months public decency was restored. This was soon followed by new women taking the place of the exiles, clandestine prostitution succeeded the former open debauchery, and the evils of disease were increased." Moreover, "the number of virtuous women became less, and corruption invaded the family circle" (Sanger, p. 96). After two years the complaints of the evil effects of this law became so general that it was repealed. This is the general history of all such attempts. Sanger holds that it is a mere absurdity to assert that prostitution can ever be eradicated. Certainly not so long as men are passionate and selfish and women weak and destitute.

To quote again from Sanger: "The whole power of the church, when it possessed not merely a spiritual, but an actual secular arm, has been in vain directed against it. Nature defied the mandates of the clergy, and the threatened punishments of an after life were futile to deter men from seeking and women from granting sinful pleasures in this world. Monarchs, victorious in the field, and unsurpassed in the council chamber, have bent all their energies of will, and brought all the aids of power to crush it out, but before these vice has not quailed. The guilty women have been branded, scourged, banished, executed; their partners have been subjected to the same punishment; held up to public opinion as immoral; denuded of their civil rights; have seen their offences visited upon their families; have been led to the stake and burned alive, beheaded, and still prostitution exists."

Charles IX, in 1560, and Henry III, in 1588, attempted the suppression of prostitution. In 1635 an ordinance condemned all men concerned in the "traffic of prostitution" to the galleys for life, and all women and girls to be whipped, shaved and banished for life, without any formal trial. This law remained in force until late in the eighteenth century, in general a dead letter, except as taken advantage of for blackmail. The ordinance of 1560 was renewed in 1778, but never enforced, and this seems to have been the last attempt at suppression of prostitution by law in France. True, Napoleon cleared the Palais Royal of the prostitutes who had made it their headquarters, and broke up some of the larger brothels by harassing their inmates, but he made no law on the subject. Similar edicts for suppression were passed in Breslau in 1812, in Berlin in 1814 and again on Dec. 31, 1845. Sanger states that "Berlin became (nominally) as virtuous as an edict from the throne could make it. The majority of the prostitutes were either sent to their former homes, or supplied with passports for places out of the kingdom. A few were left houseless, friendless and destitute. History does not say whether the friends of enforced continence provided for these sufferers." This, like all other similar attempts at enforced suppression of prostitution, resulted in scattering broadcast clandestine prostitution.

Dr. Behrend, who made an extended study of the situation, reported that there were more cases of syphilis, that syphilis was introduced more frequently into private families, that unnatural crimes were more frequently met with. He contended that abolition (!) had produced the most injurious consequences on public morals, especially in the desecration of matrimony. He says: "It is common for persons of vicious habits to arrange a marriage for the purpose of enabling them to avoid the police interference, the marriage bond being broken whenever convenient, and a new marriage formed." The king and his ministers lent all their energy for six years to crush out prostitution, when it was admitted to be a futile attempt and entirely abandoned.

Other countries have tried at different times to suppress prostitution with the same result.

While no thoughtful mind can question the impossibility of suppression, when we turn to the regulation of prostitution we find opinion divided as to its efficacy. If it could be clearly shown that regulation accomplished its purpose, probably few physicians would fail to endorse it; — and we might add that if suppression suppressed who would oppose it?

Regulation so far has meant inscription and periodic examinations of women prostitutes. We might inquire, in passing, why it has not included men as well?

But what has regulation of women accomplished? Let us see. The first record which I have found was the appointment of an officer in Rome, in the early days of the Christian era, whose duty was to arrest, punish, and drive out of the city all prostitutes who were not inscribed. It is recorded that this regulation was a dead letter; that "at no time in the history of the empire did there cease to be a large and well-known class of prostitutes who were not recorded."

Jane, of Naples, is said to have legalized prostitution at Avignon during the Middle Ages. Prostitutes were ordered to live in a brothel, to wear a red shoulder knot, and to be visited and examined weekly by the barber, who was to confine separately all who seemed infected. But history states that "the city was none the less a refuge for debauchees and a scandal to Christendom."

In the early part of the nineteenth century an elaborate method of inscription and examination of prostitutes was adopted in Paris. With the co-operation of the police very attempt was made to register all prostitutes, to periodically examine them, to treat their diseases, and to keep them out of active business until cured. Over 12,500 girls were inscribed. A similar plan is today in force in France, also in Germany, Russia, Belgium, Austria, Hungary, Spain and Portugal. It was tried in England from 1860 to 1881, and in this country for one year in St. Louis (1872). In Norway it was tried from 1860 to 1888. In Switzerland, it still exists in Geneva. It was introduced in Italy in 1860, abandoned in 1888, and re-established in 1891.

The theory of these systems of regulation presents clear argument in their favor, but put to the test of practice I think it has been universally found that a similar result followed as in attempted suppression, namely, clandestine prostitution, with a sufficient increase of disease to more than compensate for the protection given by inspection of the few who remained registered. Women dislike to be inscribed as prostitutes and are unwilling to submit to frequent examinations. Morrow, in the paper previously referred to, states that under the regulation system the number of brothels in Paris has diminished from 250 to less than 40, while the population has increased fourfold. In Marseilles there were in 1875 120 fast houses with 600 inmates, while in 1895 there were only 12 with 90 inmates. In Bordeaux the brothels have decreased from 60 to 21, and the same result has followed in all cities where regulation has been attempted. In place of the registered brothels there are hundreds of unregistered houses of assignation. Vice flaunts itself in theatres, music and dance halls and secretly flourishes in private lodgings. Morrow states that prostitution "simply changes its form and methods of business; it becomes clandestine, more elusive, less susceptible of control and infinitely more dangerous to the public health." Further, weekly examinations do not protect so much as might seem at first thought. Disease may show itself the day after the physician's visit, and the woman infect a dozen men before the next call. Moreover, every physician knows the frequent difficulty of making a positive diagnosis in women. I am aware of the successful use of this system in the German Army, but army control is one thing and public regulation another. On the other hand, the recent report of the Committee of Seven in New York states that "Without presenting an analysis of the mass of statistical evidence accumulated, a calm and impartial judgment of the practical results of regulation would seem to demonstrate that it does prevent a certain amount of infection in men. The much smaller proportion of infections which can be traced to regulated prostitutes, and the much larger percentage of venereal disease in women not regulated, are evidences of its value." But, "The fatal defect of this system is to consider public or professional prostitutes the almost exclusive source of contagion, when, as a matter of fact, they constitute only a small minority. . . . Not 10% of the public women can by any police intervention be collected, and of these about one-fifth annually disappear from observation and become clandestine prostitutes. Regulation cannot be effectively applied against the large body of private or clandestine prostitutes: it cannot reach the great mass of masculine spreaders of contagion. . . . For these and other reasons the committee does not recommend the Continental system of regulation as a remedial measure, etc., etc." Public sentiment in this country would never tolerate any such system. The public would look upon regulation as placing the sanc-

tion of the law on prostitution, and the public includes men, young and old, who would be the more readily led to indulgence by misinterpreting the example of the law, and also by a false sense of security from disease.

Whenever, or wherever, syphilis originated, there seems to be no doubt that it received a fresh impetus and was widely prevalent in Southern Europe during the latter part of the fifteenth century. Its venereal character was for a long time unrecognized. The first concept was that the affection was a new disease resulting from the conjunction of the planets Saturn and Mars. This theory was followed by several others, and it was not until the eighteenth century that the different diseases due to venery began to be distinguished one from the other. The differentiation between hard and soft chancre was not established until 1852 (by Bassereau, a pupil of Ricord). Roman doctors refused to treat venereal diseases, which were called by the generic term *morbus indecens*. The patients were left to quacks (who still thrive on it), to barbers and to old women. In Paris the parliament established a syphilitic hospital in 1614. We have no information as to the method of treatment. The patients received what was called a "welcome and a farewell," in the shape of a sound thrashing when they entered and another when discharged. In 1675 the managers of the hospital declared that this practice deterred many sick persons from coming forward and confessing their condition, but it prevailed apparently for twenty-five years longer.

What are our present facilities for the treatment of venereal diseases? Morrow states in his paper that there are fifty-six beds in the male venereal wards of the New York City Hospital and a small number in the Metropolitan Hospital. When one considers the population of New York City, it is easily appreciated that this provision is ridiculously inadequate. Even less provision is made for females. To quote again: "Incredible as it may appear, there are not hospital accommodations for 1 in 2,000 of the prostitutes in New York. That great city provides for the reception and treatment of women suffering from venereal diseases just twenty-six beds in the City Hospital on Blackwell's Island. There is not a single hospital on Manhattan Island where a syphilitic woman, whether she be a prostitute or an innocent victim of the disease, may be treated." So far as I know, the city of Boston has not a single bed in any one of its hospitals for the treatment of venereal disease, if we except the almshouse on Long Island and the penal institution at Deer Island. I understand that some provision is being made for such cases in one of the new wards at the Massachusetts General Hospital.

Is not treatment one of the most practical and important measures for decreasing the spread of venereal disease, and if so, ought not all our general hospitals to freely provide for such cases? Further, should we not multiply the number of our dispensaries with genito-urinary service, in

order that patients may not be compelled to go far or wait long for treatment? Every physician knows that the great proportion of venereal cases do not receive treatment sufficiently prolonged. Forced hospital detention has not been successful, for it keeps too many patients away. By free treatment and ease in obtaining it can we not secure more cases and therefore better protect the public at large? It may be contrary to nature to spend money and time to provide such facilities for the treatment of individuals who voluntarily expose themselves to disease, but who knows what he might have done with the same environment, and, further, there is the great army of the innocent to be protected.

Without considering the lesser causes, the great majority of girls are driven to prostitution through want. This fact may be more marked in other countries than our own, but it is an appalling truth even in these United States. The stories of many of these poor creatures are heartrending. How can a woman support herself, and perhaps a family, on any income derived from the sweatshop system? How can she pay for room and board, and dress as well as a salesgirl must, on the three to four dollars a week paid hundreds of girls in our department stores? Some such stores do not hesitate to suggest how these girls may increase their income. I have direct information of such cases in at least two places in Boston. Such a girl may not be a common prostitute, but she is likely to increase the circle of her acquaintances, and doubtless hundreds ultimately find their way into common houses. Just think of the stores we patronize being training schools and recruiting offices for such a purpose! Thousands of these poor girls and more thousands of their paramours help to disseminate disease among the guilty and the innocent alike. Have we, in this glorious country, a great body of professional men, any duty to perform in this direction?

Statistician Hunt, of the census bureau, states that 66% of young men in the United States are unmarried. This fact, associated with another, that the young men who do marry defer it later than nature apparently intended, offers food for serious consideration. Further, the population of our country is being largely kept up by the children of the poorer classes, and it is from the ranks of the uneducated that the army of prostitutes is recruited. "A large number of young women are thrown on their own resources every year without the least education; untrained for good, fit only for evil. Ignorant of their duties to themselves or to the world; with no delicate sense of refinement or virtue because those attributes have never been cultivated; with faculties on a level with the inferior animals, they are expected to succeed in life." The same is true of a multitude of young men, to whom in addition nature has given a strong sexual appetite, for the control of which they have received no training. The education of the young on the laws of life, of more importance than almost anything else, is conspicuous by its absence among all classes and grades of society.



Not one in twenty of young men who have consulted me about such matters ever received from father or mother any instruction whatever upon the subject, and I venture to say the same is true of every physician present. What general would send his forces into the field with neither training nor ammunition, and without first studying the position and strength of his opponent? Yet we annually send a great army of young men into the battle of life with no knowledge of the strength of temptation and no means of self-defense. What wonder that the enemy so successfully assails their virtue and honor! I must confess it is inexplicable to me how so many parents can abandon their children to gather the all-important knowledge of the laws of life from erratic and prurient sources. Is not a heavy responsibility here shirked which might save ultimately an untold amount of suffering? There is not room in the scope of this paper to discuss the questions of how early and in what ways the laws of life should be taught to young people, but can there be any doubt that if these things were taught in some intelligent way at an early period of life that a great amount of good would be accomplished? In the exceptional cases where such instruction is given it usually comes late in the young man's life. If at eighteen to twenty years of age he hears for the first time something of the "social evil" in its true light, it may serve as a warning and deterrent, but how many young men have their ways and habits of looking at things so firmly fixed by this time that appeals and warnings are of little use! Every physician knows how many young men form the idea that sexual gratification is a necessity, and therefore they have a right to indulgence. They become so firmly fixed in this selfish view as to be undisturbed by any plea for the rights of others, and so every year they help to shorten and make miserable the lives of the girls they buy and the girls they marry. If, when these boys came to their mothers with inquiries as to where they came from, they had been answered with sense instead of twaddle, might not their confidence and respect have been continued for mamma and for all others of her sex?

Dr. Westcott has drawn public attention to the terrible yearly record of 600 children burned to death in London. "As a result of representations on this subject made by the Coroners' Society to the home secretary, the government is considering the advisability of legislation which would enable coroners to fine and imprison persons who leave children alone with fire, or with material for making a fire, if children are thereby burned to death." How would it do for Parliament to pass a law whereby persons could be punished who convey syphilis and other misery and death-dealing diseases to many times 600 a year? It has been shown that in the city of New York in the year 1900, when the morbidity of contagious diseases was unusually heavy, there were between five and six times as many cases of venereal disease as there were of measles, diphthe-

ria, scarlet fever, chicken-pox, smallpox and tuberculosis combined! What was true of New York is probably a fair estimate for London, Boston and other cities.

If there were time it would be interesting to study what history shows of the influence of education on the "social evil," to consider the problems of the vast amount of venereal diseases treated by charlatans, the penalizing of the transmission of syphilis and gonorrhea, the protection of minors by raising the age of consent, etc. But I fear I have taxed your patience too much already, though I cannot resist asking you to bear with me while I bring up just one more point. In 1899 the legislature of North Dakota passed a law which does not permit marriage unless the applicants are able to secure from an examining board of physicians a certificate showing that they are free from contagious venereal diseases. On April 16, 1890, in the annual address of the president of the Iowa State Medical Society, he stated that "no license to marry should be granted except on a reliable physician's certificate that the parties are physically sound and qualified for the relation." Last year a bill passed the Minnesota Senate in which it is stated that "marriage licenses cannot be issued unless accompanied by a certificate from a reputable doctor testifying to the health of the candidates for matrimony, and so far as can be judged, to their good family history, etc." Ought every state and country to have some such law, or must we continue to give our daughter's hand in marriage, saying to the prospective husband: "Here she is, fresh and innocent as a rose; take her. I know that you may be tainted with syphilis or a latent gonorrhea; that, if so, you will infect her and probably ruin her health; that very likely she will have to go upon the operating table some day, but you are as good a young fellow as I know, and there is nothing further that I can do about it?"

## Clinical Department.

### CLINICAL NOTES AND COMMENTS.

#### A CASE OF MENINGEAL HEMORRHAGE AND NEPHRITIS SUPERVENING UPON A PURPURIC DIATHESIS OF TWENTY-FIVE YEARS' DURATION.

BY ROBERT T. EDES, M.D., BOSTON.

THE following case, although one of a by no means rare disease, is sufficiently unusual in its termination to be worth putting on record, and besides, from the length of time it was under partial observation, makes interesting some of those slighter symptoms which may persist for years, and yet are forgotten when greater pathological disturbances have furnished the opportunity to suggest an explanation. *Purpura (peliosis) rheumatica* has been considered more or less akin to both the conditions involved in the name, being usually and correctly arranged in the textbooks as a subspecies of purpura. The present

case appears to be most correctly classed under this head, although without the urticaria or erythema which mark the more typical cases. It was distinguished on the one hand from the almost trivial "purpura simplex," and on the other, the much severer "purpura hemorrhagica," by the presence of pain, usually in the joints,—though not always those joints having the most eruption,—and the absence of hemorrhages from the mucous membranes. The hemorrhagic tendency in purpura has been naturally ascribed both to some morbid but unknown condition of the blood, and also to a greater permeability or fragility of the vascular walls. Anemia is often spoken of in this relation, but in this case the blood was of full color, as compared with Tallquist's standard color scale, which it seems to me is quite as accurate for practical purposes as Fleischl and far more convenient. Neither did the "smears" or "wipes" show any marked departure from the average, not even any poikilocytosis, and although no corpuscular count was made it is fair to say there was no anemia.

There was evidently a greater fragility of the vessels or less resistance to mechanical injury, as was shown by the appearance of the hemorrhages—which were on the average a little larger than petechiæ, if this word is to be limited strictly to the "pin point"—at places exposed to pressure or movement.

On one occasion there were spots both in front and behind the knee-joint but not on its sides, that is, in the regions where from the flexure and extension of the limb the skin was subject to more stretching and compression. Frequently, however, as happens in most cases of the kind, no very definite connection could be observed between the localization of the hemorrhages and any special pressure. If we take into consideration the evanescent character of the cutaneous lesions, the seeming capriciousness of the distribution of many of them, and their very common association with urticaria and erythema, there is good ground for suspecting not only the strength of the walls of the skin vessels, but their vasomotor supply.

Mrs. —, age forty and of slender build, delicate, but not an invalid, twenty-five years ago (1876) had an attack of purpura of which I have no further notes. In April, 1882, she was somewhat dyspeptic and run down. She had severe pain in her left hand, which was swollen. There was some pain in other joints and purpuric spots on the legs.

In 1883 the urine, of specific gravity 1,026, contained a very few casts, but no sugar or albumin.

In 1885 there was a tendency to diarrhea, nausea and headache. In December of the same year there were several hours of glittering before the eyes and seeing of only one-half of things. Rather weak.

In April, 1887, there was nausea, the face was swollen for some time, but no swelling of hands or feet. An undated note says that many years

before she had had her face (and hands?) puffed up with a single dose of arsenic.

In 1897 there was sore throat; red, with no exudation. Pain in the wrists but no petechiæ, ecchymoses, edema or redness. In June, urine 1,029, with crystals of oxalate of lime and uric acid but otherwise normal. Less pain and no petechiæ. In December of the same year there was pain in the great toe, which grew pink and then black under the nail. Diarrhea; slight bloody discharges. Temperature normal. Very slight twinges of pain.

On Dec. 19, 1898, digestion out of order; "full of rheumatism." Joints puffy, but no spots discovered.

In April, 1899, not very well. Not decided dyspepsia. Attacks of hemiopia. Very slight vertigo. "Floating feeling." In December, uric acid.

In July, 1900, there was an attack of vertigo and hemiopia, with some gastric and cardiac disturbance and headache. The urine was normal. This condition improved during the summer, but a "floating feeling" lasted until October. The urine at this time contained no albumin but a few casts.

In September, 1901, not very strong. In November there were localized and painful swellings at various places which did not last. There were several ecchymoses about the ankles. A "wipe" of the blood gave no indication of anemia, nor did it differ as regards the character or proportions of the corpuscles from the normal. Salicylates were given for about six days; after this, iron. The urine was of specific gravity 1,021, without albumin, but having in the sediment some blood and a very few small transparent casts, with a few uric acid crystals.

Throughout December and January the same general condition continued with slight swellings at various places, leaving either nothing behind them or a discoloration like a bruise. Usually there would be distinct spots of varying sizes, but never more than a few millimetres in diameter. They lasted from a few hours to a day or two. On one occasion edema around one ankle lasted for a number of days. There was occasional diarrhea, never severe and never lasting, with no hemorrhage from the bowels. The pulse was increased in frequency but not in excess of the normal. There was no fever, and the general condition did not materially change except in the way of gradually increasing weakness. The blood retained its normal character, but unfortunately there was no examination of the urine during January, the last examination in December having shown neither casts nor albumin, but urates and uric acid.

On Feb. 3 she had a cold with a tickling cough, such as she had several times had before. It was attended with no physical signs and the temperature a few days later rose only to 99 and 99.8. There was some pain about the joints, with edema of the feet and ankles. The urine was considerably less in specific gravity (1,008 to 1,011), and

contained from this time on constantly more or less albumin with casts and a little blood. On the 12th, there was headache on the left side and vomiting. On the 16th, the pulse having been a little higher (84) and the temperature from 99° to 100°, she was dressing, with the intention of returning to her home, but before leaving the room, she complained of not being able to see, and had a convulsion in which she became cyanosed and passed urine involuntarily. On the 17th, very severe headache, complained of for the first time, and a convulsion with succeeding delirium. On the 20th two convulsions with delirium. At about this time there were appearances looking like hemiplegia, which continued with varying intensity until death. She lay most of the time with the head turned slightly to the left and looking toward the left. She could use either hand, but it seemed preferably the left. The forehead wrinkled alike on both sides, although a little later her friends said that she smiled only on one. She spoke but little and indistinctly, but there was no paraphasia. On the 20th she put her finger on her tongue and said "paralyzed." On the 25th there was an eruption all over the back, somewhat resembling scarlatina, though not so bright red.

On March 6 she died. For ten or twelve days before death the urine averaged about one litre per diem, of specific gravity from 1,008 to 1,011, always with a considerable amount of albumin and casts of various kinds except the waxy and those large ones composed entirely of degenerated epithelium; also usually uric acid crystals.

The autopsy was made eight hours after death occurred.

The thoracic and abdominal organs showed no decided abnormality except posterior congestion. The heart muscle was firm. The kidneys were of normal size, and not wrinkled or puckered or cystic, but the capsule was in places very slightly adherent, this being the only indication of any interstitial nephritis.

On removing the scalp the calvarium was found stained with a dark red, sharply defined patch of color, extending forwards with a curved outline two-thirds of the way from the nucha to the frontal eminence on the left and one-third on the right. The surface of the left hemisphere was more congested than the right, over a region not exactly corresponding to the blotched appearance of the calvarium, but having its greatest intensity over the posterior portion of the second frontal convolution. At this point, between the ascending frontal and second frontal, was an irregular black clot, as large as a chestnut, molded into the sulci. The surfaces of both convolutions were eroded and softened. On the right side, at the posterior extremity of the first occipito-temporal convolution,—or perhaps a little further from the median fissure,—at about the point marked P2' on Ecker's diagram, was a similar clot, but smaller, and having eroded the surface of the convolutions somewhat less. No other lesions were discovered.

The exact point of origin of the hemorrhage was not determined, but from its situation and the large size of the superficial dilated vessels found immediately over it, it seems more likely to have been venous than arterial.

There are several points of interest in this case in connection with both pathology and therapeutics, not conclusive, to be sure, in regard to anything, but suggestive, as so many of our purely clinical facts must be. Of the former is the relationship to rheumatism, as shown by the pain and swelling existing at the same time as the petechiæ but not always at the same place and, on one occasion at least, where there were no petechiæ anywhere. On the other hand, the dissimilarity to rheumatism in the complete integrity of the heart and the absence of atheroma, notwithstanding the long existence and the repeated attacks for years, of which, I dare say, there were more than appear upon my notes.

After the convulsions had occurred, and in the presence of albumin and casts, the diagnosis of uremia was certainly a very probable one, and the suggestion of a chronic interstitial nephritis with but few symptoms and leading up either to the acute attack of nephritis or to the unsuspected outbreak of uremia was made. This, however, was highly improbable in face of the examinations which had been made over many years, and showed but little abnormal, except an occasional excess of urates. That chronic interstitial nephritis without urinary symptoms, which occupies so important a place in many articles, is, in my experience, more often talked about than seen.

The existence of acute nephritis was, of course, indisputable, but its importance as the cause of the convulsions was doubted, when the urine continued to be secreted in abundance at the rate of about one litre on each day up to within a day of death, and of a specific gravity (1,008 to 1,011) which, although below normal, was undoubtedly capable of taking care of all nitrogenous waste from the limited diet that was used. The autopsy fully confirmed this view.

Meningeal hemorrhage without cerebral and without arteriosclerosis is certainly an unusual occurrence in chronic nephritis. It may also be said to be rare in this form of purpura, in which there are usually, as in this case, no hemorrhages from mucous membranes.

Looking upon the clot in the motor region of the left side as the source of the right-sided hemiparesis, the interesting inquiry arises whether the other clot had anything to do with the recent defect of vision and also with a possible tendency to congestion of the same neighborhood, existing for many years. Unfortunately, the notes do not state the side of the earlier hemianopsia and the glitterings before the eyes. Also, the lesion, as found at the autopsy, is situated too far out to have been the seat of the distinct limitation of the visual field, although it may very probably have been connected with the last failure of vision, the nature of which the patient was unable to describe more accurately.

# A CASE OF THROMBOSIS OF THE CENTRAL VEIN OF THE RETINA COMPLICATING CARCINOMA OF THE UTERUS.

BY CHARLES J. ALDRICH, M.D., CLEVELAND, OHIO.

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THE following case of sudden blindness of the left eye, resulting from the blood state present in carcinomatous disease, is unique and interesting alike from the standpoint of the practitioner, oculist and gynecologist. It is the only apology offered for its record.

Mrs. R., German, widow, age forty-six; has one child, a healthy young man. Except for this one child she was never pregnant. She was very healthy during her single life, and also has considered herself a very strong, robust woman until the last few years. Her family history is good, revealing no diseases which in any way might tend to diminish her own powers of resistance. About sixteen months ago she began to have attacks of uterine flooding and also slight hemorrhagic discharges between the menstrual periods. She was treated for "change of life." I was called to see her July 6, 1901, and found that she had been flowing almost continually for a period of about six weeks. She had no pain, was extremely anemic, her complexion was yellow, not a jaundice, rather giving the idea of a cachexia than anemia. The hemoglobin in the blood was diminished nearly 50%. She was plump, but weak and breathless.

Examination revealed an indurated crater-shaped os, with a mass of soft cauliflower excrescence grouped about the posterior border. A diagnosis of carcinoma of the uterus was made, which was later verified by microscopic examination by Dr. F. Y. Allen. Dr. C. B. Parker also examined the case and advised against operation, since he believed that the growth had extended too far into the tissues. Curetting and cauterization stopped the flooding for some time, she gained in strength, and once more took up her occupation as housewife and dressmaker. The effect of the curetting and cauterization, however, did not receive from the patient its true value, since she believed that her good condition and increase of strength was due to the clover blossom tea which she had been taking.

In the first week of February, 1902, she began flooding again, and it continued until the time I was called the second time. Her particular reason for calling me Feb. 24 was an accession of sudden blindness of her left eye. While straining at stool one week previous to my visit, she noticed a "film or flickering" in front of the eyes. This continued throughout the day, notwithstanding the fact that she had no headache. The next day she could not see with the left eye "except in spots." The day following the eye was blind to everything but light. There were no ocular palsies, pupils reacted to light and accommodation and were of equal size. She suffered from no headache nor anything suggest-

ing intracranial disturbance. Ophthalmoscopic examination revealed a marked hemorrhagic retinitis in the left eye, which was thought to be due to the obstruction of the central vein of the retina. The slow onset of the blindness, the fibrinous condition of the blood so commonly present in carcinomatous disease, seemed to argue for a thrombosis rather than embolism. Dr. E. S. Lauder very kindly examined the case for me and pronounced it an undoubted case of thrombosis of the central vein of the retina.

March 25: She is recovering some sight in the eye. She is able to distinguish forms of persons moving about the room. The ophthalmoscopic appearances are following in the usual course. It is possible that she may regain considerable vision, which event is not uncommon in thrombosis in contradistinction to blindness due to embolism.

April 3: In company with Dr. W. E. Bruner her eyes were again examined. She is now able to see forms moving about the room, count fingers, and see the frames, but not the pictures hanging on the wall. Her visual fields are contracted somewhat. The hemorrhages are practically absorbed; the vessels are now hard to differentiate; edema about the disk is present, and the whole retina appears throughout much paler than its fellow.

# A CASE MISTAKEN FOR PHTHISIS PRODUCED BY HALF OF A SMALL DENTAL PLATE LODGED IN THE RIGHT PRIMARY BRONCHUS.

BY GEORGE F. POPE, M.D.,

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IN the *Boston Medical and Surgical Journal* for April 10, 1902, I noticed the report of Dr. H. F. Vickery and Dr. F. B. Harrington on a case where a bean lodged in the right primary bronchus producing atelectasis. I should like to report a case where half of a small dental plate lodged in the right primary bronchus, remained there two years and one-half, and produced symptoms which were mistaken for phthisis by many physicians in good standing.

Charles M., aged thirty-five, on the afternoon of April 24, 1902, had a violent fit of coughing, during which he coughed up a large quantity of blood; he continued to cough up blood that night and all of the 25th, with great pain referred to the right apex and trachea. On the morning of the 26th, at daylight, he gave a slight cough and raised half of a small guttapercha plate, as shown in the figure, which is an exact outline of the piece, showing by the serrations where two of the incisor teeth had been attached. It actually measured  $\frac{1}{4}$  inch in the longest diameter and  $\frac{1}{16}$  inch in the opposite.



*Previous history.*—Two years and one-half ago, while wearing a small plate for the four upper incisor teeth, he received a blow in the mouth of great violence. The false teeth were all knocked out of the plate and it was fractured in halves. In the excitement of the moment he said he thought he had inhaled one of the teeth, but the doctors he went to at the time "laughed at him, so he never mentioned it again." After this he developed pain in the apex of the right lung and a troublesome cough, losing flesh and strength. This cough seemed to get worse if he lay on his back. "There seemed to be a valve shutting off his wind on the right side," as he said.

He went from one physician to another, and all but one told him he had phthisis. This one had examined the sputa twice and told him it was not consumption. At one time he lost thirty pounds in weight, and always had more or less coughing.

I find on physical examination that the chest symptoms are clearing up and he has gained four pounds in weight since the expulsion of the foreign body one week ago.

## Medical Progress.

### RECENT PROGRESS IN NEUROLOGY.

BY PHILIP COOMBS KNAPP, A.M., M.D., BOSTON.

[Concluded from No. 22, p. 575.]

#### EPILEPSY.

CENI,<sup>8</sup> in continuing his researches upon the toxic nature of epilepsy, has published some interesting results. As the etiology of epilepsy seemed to be intimately connected with a toxic principle of endogenous nature, he has endeavored to find out whether this toxin, like toxins of microbic origin, could develop a therapeutic or immunizing principle. He first tried whether the injection of the blood serum of one epileptic had any effect upon another epileptic, with the result that in two cases out of six, acute poisoning was produced with an aggravation of the morbid conditions. Injection of serum from healthy individuals in these and subsequent experiments had no effect. He next tried repeated injections of serum in progressive doses, to see if he could increase the organic resistance or produce a state of immunity. He tried the injection of serum from another epileptic in six cases and injection of the patient's own serum in four cases. All the patients were severe cases with more or less severe psychical and psychosensory symptoms. In five of the cases injected with serum of other epileptics and in three cases injected with their own serum there was a notable and rapid improvement in the general nutrition and an amelioration in the morbid condition. In six cases the morbid motor psychical and psychosensory manifestations diminished

notably in number and intensity. The organic disturbances improved or disappeared, there was a gain of fifteen or twenty pounds in weight, and the mental faculties revived. After the discontinuance of the injections the epileptic manifestations increased, although they were less pronounced and the increase was slower. In two cases there was a still greater gain; the morbid manifestations ceased wholly, the organic disturbances disappeared, there was a still greater gain in weight and a complete transformation of the psychical personality from a reawakening of the mental faculties. In these cases the improvement has now continued for two years. In two cases the injections, instead of showing therapeutic and restorative powers, had a toxic and epileptogenous effect, with symptoms of severe general intoxication and an increase in the epileptic manifestations. These two patients had hereditary congenital epilepsy. As a result of these experiments Ceni thinks that he has demonstrated the existence in the blood of epileptics of two active principles which, from their differing and opposing properties, must be considered of different nature and origin. Of these principles one circulates in a free state in the blood of epileptics and is endowed with purely toxic properties which can manifest their effects directly or indirectly by injection of the blood serum of one epileptic upon another epileptic even in small doses. The activity of this toxin varies in individuals and the phenomena which it can determine are acute and transitory in character. The other active principle circulates in the blood of epileptics only in a latent state, and it is endowed with stimulating properties upon these cellular elements which preside over the functions of metabolism and which constitute the probable seat of the elaboration of toxic epileptogenous agents. These stimulating properties are manifested only as indirect and distant consequences, by repeated and long-continued injections of blood serum from an epileptic, either in the organism of the person whose blood is used or in that of another epileptic. These principles, endowed with stimulating properties, can modify profoundly the metabolic changes and the epileptic manifestations, exercising a slow and progressive action. They have a therapeutic and restorative action upon metabolism and a debilitating and harmful action on the epileptic manifestations. These different and opposing modes of reaction are connected particularly with special organic conditions, almost wholly unknown to us, in the individual injected; while it seems that the organic conditions of the individual in whom these active principles are elaborated, have no notable consequences upon the different and opposing action which these principles can explain. In the cases in which the stimulating principles can act upon the physiological activity of the cellular elements of nutritive metabolism and thus acquire restorative and therapeutic properties, we have, as a constant result of continued injections, a notable and sometimes great increase in weight, an amelioration or total

<sup>8</sup> Rev. Sper. di Fren., December, 1901, xxvii, 761.

disappearance of any disturbances of the functions of organic life or of the life of relation. At the same time the disturbances of the psychical functions improve or disappear. The epileptic manifestations, whatever be their nature, diminish notably in frequency and intensity or disappear completely. The stability of these positive results is in direct relation to the degree of physiological reaction of the elements of nutritive metabolism. In the cases where these active principles can not act upon the physiological activity of the elements of metabolism, it is not possible to obtain any benefit from injections of serum; but, when these injections are continued in the same manner as in the preceding cases, we have as a final, though transitory result, a diminution in weight and an increase of every disturbance in organic life and in the life of relation. The mental functions are performed worse and the epileptic manifestations increase, sometimes notably, in frequency and in intensity.

#### NEUROSES IN CHILDHOOD.

The majority of writers have held that hysteria and neurasthenia are rare in childhood, but this opinion has recently been combated by Saenger,<sup>9</sup> who maintains that they are as common, if not commoner, than in adult life. Out of 30,759 eye patients he found 1,029 children suffering from nervous asthenopia, and in these cases he found that the visual disturbance was one symptom of a general nervous condition. This nervous condition was usually neurasthenia, hysteria, a mixture of the two, or a hereditary neuropathy (a psychopathic defect). The children of the first group (neurasthenia) are usually anemic, irritable and disposed to cry. Their anxiety often prevents them from answering the physician's questions. They are readily fatigued, as can easily be determined by testing the visual field or making the child read. Almost all complain of angioneurotic symptoms, palpitation, vertigo, praecordial anxiety, and show an increased vasomotor excitability. They are sad, are averse to food, and are obstinately constipated. The sleep is disturbed, they are restless, talk in their sleep, and have night terrors. Phobias are common. Many such children show a pronounced tremor of the lids on closing the eyes. The second group (pure hysteria) is also quite common. In most cases there is no psychical abnormality, and most of the cases are decidedly intelligent and never feeble minded. The child often has a decidedly older look, and the forehead may show lines. Hysteria in childhood is often monosymptomatic, but many hysterical stigmata sometimes may be found in the same patient. The third class is the largest, and in it nervous asthenopia is especially common. The eye is sensitive to light, near vision can not long be maintained, and the pain in the head and eyes gives rise to a characteristic expression. Both the muscles of accommodation and the retina are speedily exhausted. Fatigue

is a prominent symptom, but hysterical stigmata are also present. Somnambulism is common. Mentally such children are more stupid and less anxious than those of the preceding classes. Adenoid growths are also common. The fourth group shows a decided neuropathic heredity; convulsions are common in infancy and tics and choreic movements in later life. Fears and night terrors are common, they complain of the slightest ills, they are pronounced egoists, and the sexual impulse is prematurely developed, leading to unconscious and excessive masturbation. The moral impulses are ill developed, the child may be dirty, ugly, dishonest and the like, or show signs of well-marked moral insanity, yet he may show great precocity in some special line. In all four classes both sexes are about equally affected, and the trouble is apt to come on between the tenth and fourteenth years, which points to the injurious influence of school life. In the first three groups the prognosis is good if the trouble be recognized early, if the first symptoms can be energetically uprooted, and if the injurious influences can be removed and proper treatment instituted. Removal from school, treatment of the anemia, fresh air and suggestion in the waking state by static electricity, work, etc., are to be recommended. Hypnotism is wholly to be avoided. In severer cases, institution treatment, with baths, gymnastics, and forced feeding, becomes necessary. Anemia is an important factor in the etiology. From a study of hysteria in childhood Saenger opposes the view that hysteria is due to disturbances of ideation or to psychical changes, but its basis depends upon alterations of functional conditions in the central nervous system. Furthermore, from a study of nervous asthenopia, he is led to the belief that the disturbance in neurasthenia is not purely cortical, but that a defective efficiency of the peripheral neurons in different regions may be the basis of the varieties of neurasthenia. This accounts for the efficacy of many therapeutic measures applied to the nerve endings — massage, electricity, hydrotherapy, baths and gymnastics. Exhaustion of the various sensory organs, without time to assimilate sufficient nutriment in the terminal apparatus, is one of the conditions of modern life leading to neurasthenia, while the centres of understanding and judgment are often so intact that the patient can be an intelligent critic of his own condition. Phobias and imperative ideas are not a part of acquired neurasthenia but of a hereditary neuropathy. Beside bad hygienic conditions, anemia and defective nutrition, overwork in schools is responsible for much of the nervousness of childhood. Many of the cases of suicide in childhood, which are steadily increasing and are commoner in Germany than elsewhere, are due to the dread of failure in school, shame and fatigue. The appointment of school physicians is an urgent need to improve the defective conditions of our schools, and, furthermore, the ordinary physician should pay greater attention to the nervous diseases of childhood.

<sup>9</sup> *Monats. f. Psych. u. Neurol.*, May, 1901.



## NEURASTHENIA.

Although attention is often directed to increased irascibility as one of the manifestations of the increased excitability of neurasthenia, Pick<sup>10</sup> thinks that little attention has been paid to an increased excitability in the affective domain also met with in that condition, although Morel had, under the much more comprehensive heading of "emotional delirium," given a full description of such a case as an example of excessive impressionability and emotivity. In Morel's case a man of high intelligence would burst into tears on hearing certain musical motives, or on exhibiting certain pictures in his collection. His emotional manifestations were in no relation either to the causes which produced them or to the exaggerations to which a naturally kindly soul might for a moment deliver itself. In Pick's case a woman of seventy-nine, who was in no way hysterical, manifested excessive sorrow about everything,—a condition which had existed for fifty years in greater or less degree, and which she claimed to inherit from her father, who would be beside himself for days if his son brought home a bad report from school. She herself would be so beside herself, if her brother were corrected, that she would have to be sent away. Later in life, if any order committed to her in business were not ready at the appointed time, she would fall into terrible grief, asking God what would become of it; if her husband stayed out late she would become intensely anxious lest he were drunk or arrested; if her relatives did not visit her regularly, she would mourn because they had ceased to love her, and the like. This exaggerated emotivity was manifested not only about her own concerns but about those of total strangers, the sad lot of beggars, etc. This condition finally increased to such a pitch that she had to be sent away to the hospital. If her anxieties were temporarily appeased there was no permanent state of depression and no indication of mental failure. The condition is characterized by an excessive reaction to all ideas having any painful character; the "psychical tonus" is so diminished that the slightest impressions of a particular class lead to a reaction beyond the normal. It is a pathological increase of the condition which, when within physiological limits, is characteristic of the emotional or sentimental man, or the "man of feeling." As a result the patient's disposition becomes permanently painful, yet clearly distinct from melancholic depression, which is not paroxysmal and is not excited by the reaction to painful impressions. It is also to be distinguished from imperative ideas, which the patient recognizes as something foreign coming from without, while these ideas seem an integral part of his consciousness. As a manifestation of "irritable weakness" it therefore is to be regarded as an emotional disturbance of neurasthenia. [Although comparatively little attention has been paid to this condition in medi-

cal literature, it is, however, an extremely common condition in real life and one with which the physician should be familiar. As the manifestation of an abnormal disposition it is often a state which lasts through life, and thus, although a source of distress to the patient and especially to the patient's family, it is a condition for which the physician may rarely be consulted.—REP.]

### Reports of Societies.

#### MIDDLESEX SOUTH DISTRICT MEDICAL SOCIETY.

ALBERT AUGUST, M.D., SECRETARY.

MIDWINTER meeting at the United States Hotel, Boston, Jan. 21, 1902, Dr. C. H. Cook presiding. DR. MARSHALL H. BAILEY read a paper entitled

#### SOME PROBLEMS CONCERNING VENEREAL DISEASES.<sup>1</sup>

DR. S. W. DRIVER: Dr. Bailey has covered the ground in a most admirable manner, and the most I can do is to tell you how certain points strike a man who has been in practice in this community about forty years, who must have had a vast number of instances to illustrate the various points of this paper, must have felt in all its woefulness the sorrows that come from these two diseases, who must have tried to think of means of remedying the evil. I wrote down briefly—and the reader has pretty much covered the whole ground—what possible means might be used to counteract and combat these terrible evils, and they sum themselves up as follows: (1) The influence of the home; (2) the influence of the school and the college; (3) the influence of religious training at the hands of the ministers, Protestant and Catholic; (4) the doctor's influence both on his patients and on the parents; (5) the effect of early marriage; (6) the question of the regulation of the social evil; and, finally, who shall marry?

Now, under the first head, the influence of the home, I will only speak of a few points. It seems to me the great failure has been in the home influence, the influence which should be strongest by perfect confidence between the mother and the daughter and son, and the father and son, and their influence used to its best in combating the terrible evil of all,—ignorance,—that permeates everything. Ignorance: Any man who has been in practice as I have for so many years, finds the majority of young men and young women who come under his care for these diseases have fallen into trouble through ignorance.

I am going to give one illustration of what can be done and how early the influence can be brought to bear. Within three weeks I attended in confinement with her fifth child a mother who represents the great, good, civilized, middle class of

<sup>10</sup> Arch. Psych., 1902, xxv, 328.

<sup>1</sup> See page 592 of the Journal.

New England, the very marrow of American society. She told me about her little boy. She said: "Will has known all about this baby, and Will and I have perfect confidence. He understands all about it. He knows where the baby has been, and every night he has come to me and kissed me once for mamma and once for the baby." That shows that the mother can begin young — this boy is nine years old — and have perfect confidence between her son and herself and inform him of those things which he ordinarily learns from vicious companions.

Another illustration to show how this influence can be used. A mother, before her son started to go abroad to spend a year, said: "My son, you will have temptation presented to you in its most alluring form on every side. I want you to write to me the history of each day, tell me if you come in contact with any great temptation, and moreover, I want you should remember that some day you will come across some lovely woman you will desire to make your wife, and you will want to say to her that you come to her in the confidence and honor of a pure man." What happened? He went abroad, kept himself straight, came back, went into business, met a beautiful woman and made his proposal. She wrote and said: "If you come to me as pure as I come to you, yes; otherwise, no."

The influence of the father is immense. He can do the same thing when his son goes to college. I have just been reading Professor Briggs' work on "School and College," and I am rejoiced to know that the influences that can counteract not only the effects of disease itself, but the spread of it, are at work in a great institution like Harvard University. There is a stated purpose carried out on the part of the governing body and of the older men in Harvard to come in contact frankly and freely with every man as he enters college, and try to hold him free from temptation, and help him to break away from it when he has fallen. They can use an immense influence.

As to religious training, I believe the time will come when the religious influence on the part of the minister will be made stronger and more potent than now. In reflecting over my forty years' experience as to how much I had seen Protestant ministers use their influence with young men and women I never have seen anything direct, never any good, fair, square teaching or preaching on the subject; only indirect preaching against sin. I think, as far as I have known, the Catholic Church has more merit because, although we who are Protestants have our natural prejudice against the confessional, I believe a potent influence has been used in that church to keep their women from the disasters of these diseases. It used to be a saying among us that we rarely found a young Catholic woman who had fallen. We felt that the influence of their clergy had held them against temptation. In later years, however, this does not seem to be the case, for I have said to some of these young women: "How did this come about? Did not your minister say so-and-so to

you? Did you not tell him?" "No, we did not tell him anything." I believe if the clergy would use all the power they have, that would be another potent influence.

The doctor's influence: I put this as the most potent because he can do two things. First, he can use his influence in the family with the parents. The moment he enters a family he can use his influence with the young couple and his knowledge to tell them exactly what they ought to know, and how they ought to train their children; how they ought to teach their children something of the evils that can come from this. Then, again, the doctor can use his influence on the children as he comes in contact with them. It is rather an evil thing to lock the stable door after the horse is stolen. Time and again a young man or young woman comes to me who has fallen through ignorance, who has not the most disastrous form of the disease, has escaped as by fire, but the men I know — the older men — never allowed one of those men or women to go out of our offices until we gave them a clear statement of the possibilities that might come from these diseases. I know a man in the ministry today who was saved in that way. He fell into temptation. He is now a good man and doing good work. The doctor has a most wonderful power if he will only use it and on all occasions. We look upon these things sometimes as a commercial matter, a matter of indifference, but the doctor should appreciate his power and never fail to use it. The young men in the profession are perhaps more likely than we to come in contact with a class of men suffering with these diseases and can do more good. I have, I know, helped men and women out of the mire in my early years.

One more thing: The question came up in my mind whether it was not incumbent on a great society like this, which discusses this question gravely, to prepare a manual, as was done fifty years ago by the best men in Boston, on the evils that come from interfering with conception, from abortion, etc., — a proper work to be put in the hands of laymen; why it might not be incumbent on this society to prepare a manual that would give a plain and clear statement of the possible evils that would come from so insignificant a thing as it is often considered, as gonorrhea, or from syphilis, to remove from the community the pitfall of ignorance. With such a manual we could say to a father or mother: "You ought to have this book to help you bring up your children."

I have not time to say what I would like on early marriage, but I firmly believe that the custom of early matrimony, as soon as the young man could gain income sufficient to maintain a wife in a modest, simple way, beginning as our fathers and grandfathers began, would do more for social purity and real happiness than any other thing. The custom is all the other way: to wait until an establishment can be set up at the very beginning, as fine as the father and mother end with. The happiest couple I know are a

young Harvard graduate and his wife, who started in a small, neat and convenient suite of rooms,—now so numerous,—in a quiet suburb. They made a love match. Love and contentment have followed them ever since. They would not to-day exchange ten years of this for thirty years of later life with all that wealth and fashion could give.

I was asked by the reader of the paper what I thought of "regulation." I think it is absolutely inefficient and damnably unfair—that is what I think of it. It deals with repressing women, treating women, and every woman represents half a dozen men, when she is an ordinary public prostitute, and even in case of private prostitution sometimes, and the men are allowed to go free. I was once called into a fine Methodist family where the father and mother were everything good and the daughter sick, and I was called to see what was the matter. The back of the hand was swollen and very painful. I requested the mother to leave the room. I then asked a few questions and obtained the facts. She had a young man lover who took her here and there. She acknowledged how she had fallen and he was "sick." This man had been going round and came to her and led her astray, and she was suffering from gonorrheal rheumatism. How absurd to regulate the woman and let the man go free! No, sir. How unfair! But I do think well of another thing. If the community, through the parents and the doctors and ministers, has clearly defined knowledge of the evils of this thing and the consequences of it, that there be enacted a law regulating marriage, a law that shall require a certificate of soundness before a man or woman can marry, the community asserting its right to protect itself from pauperism, insanity, tuberculosis, and also such a thing as chorea. A young man, a choreic, in Cambridge, married a few years ago, and they now have choreic children. I believe the State has a right to say to such, "You shall not marry." If a man has syphilitic taint, "You shall not marry;" gonorrhea, "You shall not marry;" and tuberculosis, "You shall not marry;" inherited insanity, "You shall not marry." I think the time will come when the community will have arrived at this. It must, to preserve its existence, regulate marriage; and when the young man and young woman know the consequence of these failings, I think it will have a powerful restraining influence. That I would advocate most of all, as a legal restraint.

Lastly, I have considered the question of whether punishment will help. I think that will help the other. An action for damages against the man who gives a syphilitic taint to the woman would be another restraining influence.

To sum up: one thing cannot do this work. You must have every means brought to bear to combat the evil, and the medical profession have got to be the pioneers. For your encouragement I will say this: the minister does not always succeed in saving the soul; the doctor does not

always succeed in saving the body,—but sometimes, the doctor saves both body and soul.

DR. ARTHUR G. GRIFFIN: It seems to me rather superfluous for anyone to stand up and discuss a question that has been so admirably presented by the reader, and also by the remarks of Dr. Driver, but these problems must be met, discussed and acted upon, if the human family is ever to be relieved of its burden. We should look upon them as curable diseases, both I believe so considered at the present time, and as such not only the moral phase and the home phase and the religious phase can be looked upon and acted upon; but I think the State can also do something to help the matter along. It was my fortune or misfortune to be associated with some of the city institutions for a number of years, and one especially where there were between 10,000 and 12,000 commitments in a year—a large number of women and a larger number of men; also boys and children. We used to discuss the question among the medical fraternity as to some means being provided whereby these people in the contagious or infectious stage can be commanded to remain in the hospital until in a condition to go out and associate with people. We discussed it with the officers and trustees of the hospital, and even asked them to present some bill to the legislature whereby something might be enacted so that we could compel them to remain with us, but never accomplished anything. I think a law could be passed, and I think it would be a great help in our large cities, if those people in the infectious and contagious stage could be compelled to remain in the hospital until thoroughly cured, or, at least, so that they would not spread contagion so generally throughout the city, and that seems to me to be the only entering wedge we can have as far as legal enactments go at the present time, and if that could be done it would save the city of Boston a great deal of misery if those people were cared for. We used to have sometimes fifteen or twenty a day in the acute stage, many of whom were committed for only ten days and could not be compelled to remain until they ceased to be a source of danger to the community. I think that something can be done in that direction which would help a little toward eliminating part of the community from the trouble.

DR. LEWIS M. PALMER: If I were to attempt to speak any length of time at this hour and after these able papers and discussions, I am afraid you would feel like saying what my good old college president did in my presence a few years ago. I was asked to give a lecture to my alma mater on the medical profession. I spent lots of time on it; I thought I had a pretty good thing, in fact, I had a little big head on the subject, and I gave it with considerable pleasure and pride. You can imagine my feelings when I got through to hear the old college president say: "Dr. Palmer has now finished his address. Praise God from whom all blessings flow!" I am afraid you would feel like saying the same if I were to speak any length of time.

In a manual furnished by the State Board of Health I found today what seems to contradict my brother on the right, for I find in that a state law—I cannot give the date—which provides for just this thing that the last speaker has referred to, that in public penal and charitable institutions, jails, reformatories and almshouses where a disease known as syphilis is found, if in the opinion of the medical officer it is dangerous, the patients can be quarantined and immediately put upon treatment, and if at the expiration of the term of sentence it is deemed for the good of the public, they can be detained until they are cured and the amount of \$3.50 a week assessed to the town where they have a residence. This is the latest manual, and I assume it is correct. If the state can do this in penal and in charitable institutions, it seems to me it is only a fair inference that it can be carried still further.

The danger of these two horrible diseases, syphilis and gonorrhea, has been well stated by the reader of the evening. Nobody questions the horrible nature of the two diseases, their fearful presence and their awful consequences. Every busy physician sees them in his every working day, and I think the time has come when that morbid something I can find no name for, which forbids mention of that most delicate of all subjects, the relation of the sexes, shall be done away with, that influence which moves men and women both; it is the foundation of the home when in its pure nature; that the children should be taught, that the public should be taught, that the danger should be heralded; and where else can they better be taught than by the medical profession, which is the guardian of the public.

A few years ago we had in my town an industry that did not employ the best class of help. There was one young woman who was familiarly known as "Polka Dot," because she wore a polka dot dress, and it got to be a pretty serious joke, as one young man after another came into my office, until I finally would say: "Been to see 'Polka Dot'?" "Yes." The amount of danger, of sickness, of suffering, of death that followed in the wake of that miserable creature, who was once some mother's child and pure, is beyond all reckoning. She was a public menace and danger to the community.

On the other hand, today I have the misfortune to be the chairman of the Board of Health of the town of Framingham, and we have among us a case that some of you may have heard of, a case of smallpox. Compared with the other kind it is small. My town today is in a state of uproar, and I have certain sections of it upon my back, speaking figuratively, and have undergone a good deal of mental disturbance because of that one case, which is isolated, policed, quarantined, every possible care taken to prevent the spread of the infection, and yet, ladies and gentlemen, I do not hesitate to say that that one foul girl in our midst was more of a danger to the town of Framingham than the present one case of smallpox. In the case of the girl it was a standing poor joke; in the case

of the smallpox it is a horrible reality with them. In the case of the girl her sins and her disease were visited not only upon the immediate ones, but through them, by heredity, will go down through the years to come. In the case of the smallpox it will be the last, probably, of the trouble.

I have said several times in public and brought upon myself criticism because I think in America we have too much liberty, but I still think it. That fetish which everybody worships of personal liberty carries with it fearful consequences. I think we have much we can learn from some of the old countries. Some of you to whom I speak may have been in that clinic in Vienna in the *Krankenhaus*, presided over by that masterpiece of mixed virtues, Neumann, where the prostitutes of Vienna are brought for treatment, and this is the point I want to emphasize, which was brought out so beautifully by Dr. Driver, the damnable inequality of the regulation was there avoided, for I have seen him in his clinic bring out unwillingly from the young girl where she got her disease, and then under that despotic form of government, which has its merits, he sent his police officer upon the streets and brought into the wards and kept in the wards the source of that contagion. If we could have that regulation in this great and free country of ours it would be possible to do something toward doing away with the abuse.

Ladies and gentlemen, I think the time has arrived when we, as a medical profession, owe it to the public and to ourselves to shake off this false modesty and to speak boldly and intelligently and scientifically to the people and let them know the dangers that lurk in our midst. The dangers from scarlet fever and of diphtheria and of smallpox pale into insignificance when compared with the horrors that result from these two diseases. If the legislature has power to pass laws for the regulation of the lesser, how much more reason have they to take to themselves the power to provide for the greater! But the legislature will be very slow in taking this action unless the initiative is taken by medical bodies. The double standard or morality is a question of burning shame. One of the sweetest satisfactions I have had in my medical experience is when I have rarely—it is only too true—been able to bring the perpetrator, the young man who has ruined a girl, to share in the trouble and expense and the shame of his sin. And when that law does come, and come it must; and when that law which Dr. Driver has referred to of the marriage certificate, and it will come; and when those other laws which are bound to come, although this, perhaps, may not be the age when we are ready for it; when the hopelessly insane, the idiotic and the criminals shall either be prevented from propagating their kind or shall be mercifully removed from their suffering as we would a pet dog, we shall have made a step in progress. Let us, as a society, do our duty towards bringing that happy time.

DR. C. J. BLAKE: As Dr. Palmer has said, the time has come, it is, and is to be—the time for a more general participatory action on the part of the medical profession in relation to a matter so deeply concerning the public weal, and one with which the medical profession is especially fitted to deal as a part of its great responsibility, a responsibility born of knowledge, for no other body of citizens knows so much of the diseases which are the subject of the discussion this evening, and of their consequences; and the doctor, as Dr. Driver has said, is an educator as well as a practitioner, and in possession of the latest and the absolute facts in all such matters. The training, which has taught both the structure and the normal use of the human body, entitle the teaching of the rules which govern that use, the straight and plain laws of nature within which there is no concession of lawful indulgence.

Primarily the duty of the doctor is to the individual; for him the patient under his hands must be the only person in the world for the time being, and it is this relationship which gives him his hold as an educator of the individual, but, in the face of such widespread conditions as have been set forth in Dr. Bailey's paper, in the necessity for a better understanding of the situation with a view to the determination of remedial measures, the doctor, taking counsel with his fellows, should stand forward, with no uncertainty as to his purpose, as the educator of the mass.

One of the plans suggested as a part of this educational process has been conferences in which the physician, the lawyer, the clergyman and the phrenologist should be represented, but, since the first of these is necessarily the member to whom appeal for information will be most frequently made, it is important that the physician should educate himself, not only in his especial part of the subject, but also in its moral and legal bearings and in the public attitude toward it, the most prolific source of the spread of venereal diseases being the prosecution of a business of purchase and sale which must be combated, not only morally and educationally, but in a business-like manner, having always in view the fact that it is the purchasing power which perpetuates the wrong.

To the end that the doctor shall take his just part in this conjoint work, I would suggest that this, and similar medical societies, appoint a standing committee for the study of, and the report upon, the subject of the spread of venereal disease, and that the women members of the profession be represented in the membership of this committee. The creation of such committees would do much to encourage investigation, to disseminate information, to awaken public action, to influence legislation, and to demand of the doctor his own recognition of his duty as a sociological factor in the community of which he is a part.

DR. MARSHALL H. BAILEY, in closing the discussion, said: I would like to say just two words:

one in regard to Dr. Driver's remark along the lines of education, the special line which has interested me more than any other. I was glad to hear him bring in the question of religious education both Catholic and Protestant. The other one is in regard to Dr. Blake's statement that the time has come for the medical man to do something outside of his everyday opportunity in his own practice. I trust all of us have realized before this the everyday duty of taking each opportunity as it occurs. In addition to that we ought to take up something along the line I have been exceedingly pleased to hear Dr. Blake state—a permanent committee for active work in these matters. Otherwise, what is the use of writing papers, and what is the use of talking upon this subject? It occurs to me it is a good deal the same as individuals who go to church and prayer meetings, and tell how good they want to be and what they desire to do. That is all very well if they go out and do it. So in these medical meetings, it is useless to write papers about what should and should not be done unless we follow it up in active work outside, and I believe with the gentlemen who have so ably discussed the subject, that the time has come when this is going to be done; that the time has come when that something which the gentleman from Framingham said he could not name, but which prevented people from talking on this subject, should be done away with. It is all nonsense, I think, that we cannot speak of these things to each other freely and to women as well as to men. Personally I have never had any hesitancy to speak in the plainest possible manner to any intelligent woman as to any intelligent man upon this subject. It is when we get into the ranks of the uneducated that we find modesty with its heaviest veil.

#### THE AMERICAN ASSOCIATION OF GENITO-URINARY SURGEONS.

SIXTEENTH ANNUAL MEETING, HELD IN ATLANTIC CITY, N. J., APRIL 29 AND 30, 1902, THE PRESIDENT, WILLIAM T. BEIFIELD, M.D., IN THE CHAIR.

(Concluded from No. 22, p. 582.)

#### TUBERCULOSIS OF THE TESTICLE.

DR. PAUL THORNDIKE of Boston presented a short paper on tuberculosis of the testicle based upon 75 cases of the disease collected from the surgical wards of the Boston City Hospital. Of these cases 67% occurred between the ages of 20 and 40 years; 60% involved the left testis; 18% involved both testes. Gonorrhea had preceded the development of the disease in 30% of the cases and trauma in 12%. The epididymis alone was involved in 32 cases. The vas deferens was palpably involved in 12 cases. The seminal vesicles were palpably involved in 16 cases. The prostate was palpably involved in 13 cases. Dr. Thorndike's paper discussed two points: One, the feasibility of removing the epididymis and leav-

ing the testis behind, in proper cases; two, the benefit to the patient of operations which remove only a part of the disease in cases where total eradication of the tubercular process is impossible.

DR. THORNDIKE also reported two cases of

#### GENITO-URINARY TUBERCULOSIS.

In the first there was a deposit in the prostate which was not alone the only manifestation of tuberculosis of the urogenital system, but also the only one in the body. In the second case it was clearly shown that the ureter on the same side as the diseased adrenal had been infected through its mucous lining by the tubercle bacillus, carried there presumably by the urine secreted by the kidney, the adrenal of which was tuberculous.

#### AN ANALYSIS OF NINETY-SIX OPERATIONS FOR THE RELIEF OF TUBERCULOSIS OF THE TESTICLE.

DR. ORVILLE HORWITZ of Philadelphia, after recounting many cases, said that he seemed warranted in presenting the following conclusions: (1) A primary tubercular infection of either the epididymis or testicle may occur, the former being by far the more common; (2) a primary infection of the epididymis, secondarily that of the testicle, is more common than the descending one; (3) primary involvement of either the epididymis or testicle usually takes place through the circulation, the soil being predisposed to the location of the tubercle bacillus either by a slight traumatism or by some infective condition which has given rise to inflammation of that organ; most commonly an attack of gonorrhea; (4) secondary tubercular involvement of the epididymis or testicle sometimes follows a primary focus of the disease in other portions of the body, and more commonly in those organs that are in a direct anatomical connection with the sexual glands, such as the seminal vesicles, prostate, urethra, bladder, ureter or kidney; (5) the invasion of the testicle may be rapid, associated with acute inflammatory symptoms, an abscess soon developing, or the onset may be slow, the symptoms simulating those of either chronic syphilitic orchitis or malignant disease of the organ; (6) the tuberculin test should always be employed in doubtful cases where only one focus of the disease is known to exist; (7) in doubtful cases associated with hydrocele, the fluid should be examined for the tubercle bacilli and inoculating experiments made; (8) the injections of either emulsions of iodoform or of sulphate of zinc into the diseased part are not to be recommended; (9) in all cases of encapsulated caseous nodules quiescent in the epididymis, epididymectomy should be performed; (10) epididymectomy together with resection of the vas deferens is not attended by either atrophy of the testicle or sexual weakness; (11) the drainage of tuberculous abscesses followed by the use of the curette is only to be employed where radical treatment is not permissible, as it is attended with more or less danger and is generally un-

satisfactory in its results; (12) in instances where the epididymis alone is involved, a resection of the diseased structure is all that is required, but whether a partial or complete resection of the vas deferens is to be undertaken is still undetermined; (13) double orchectomy should be performed when both glands are diseased, provided there is not extensive coexisting tubercular infection of other organs; (14) whether infected seminal vesicles should be always removed at the time that the epididymis or testicle is resected is a question open for discussion, but from the fact that in a large majority of cases the removal of the primary seat of the disease is followed by a subsidence of the tubercular involvement of the vesicles, it is deemed wiser as a rule to wait and remove the vesicles later if necessary; (15) hygienic and climatic influence play as important parts after operations in fortifying the constitution against further invasion as they do in other tubercular conditions; (16) the antitubercular remedies are of great value in controlling the disease, and should always be employed in conjunction with whatever surgical procedure may be deemed necessary.

#### TERATOMA OF THE TESTICLE; REPORT OF A CASE; PRESENTATION OF PHOTOGRAPHS.

DR. JAMES R. HAYDEN of New York reported the case of a patient, twenty-seven years old, a butler, who was admitted to Bellevue Hospital April 19, 1901. There was no family history of tuberculosis or malignant disease. He denied ever having had syphilis, local traumatism or strain. Nine years ago he had gonorrhea which lasted about three months. Seven years ago he had a second attack, complicated with a right-sided epididymitis which was quite severe, and since then the affected testicle has remained a little larger and harder than its fellow. Two and a half months before admission the right testicle began to increase in size, becoming firm and hard. During the past few weeks there has been some local pain and a feeling of weakness when still, but which disappears when he walks. Upon admission his general condition was found to be good. The right half of the scrotum was occupied by a smooth, painless, heavy and densely elastic tumor, in which the epididymis and testicle proper cannot be differentiated. There was apparently no involvement of the cord, and there was no hydrocele of the tunica vaginalis. The circumference of the tumor at its largest part was 11½ inches. The scrotum was normal in appearance and non-adherent. There was no glandular involvement. A diagnosis of malignant disease of the testicle was made, but in order to exclude the possibility of syphilis, the tumor was enveloped in strong mercurial ointment and the patient given large doses of iodide of potassium, in spite of which the tumor grew so rapidly that this treatment was stopped and the tumor removed. The tunica was normal in appearance and there was no thickening of the cord, which was ligated and cut high up. The wound healed kindly without complica-



tions, and the patient left the hospital one month after admission, but failed to return again, as was requested of him.

The pathological report gave the following microscopical appearances: The growth was mostly composed of a mixture of sarcoma and carcinoma, in combination with other varieties of tissue, and undoubtedly belonged to the class of teratomata. The sarcomatous tissue was both small round celled and small spindle celled, a few giant cells being present in places. The cancer was adenocarcinoma, and practically replaced all the glandular elements. A considerable cartilaginous element was seen throughout, of the hyaline variety, with here and there beginning ossification. Mucous cysts were present. The connective tissue was fairly normal but as a whole showed an unusual cellular element. The vessels were congested, with a proliferation of cells about them, and in parts well marked hemorrhages were found. Smooth muscular fibres were noted, with a slight degree of fatty degeneration and some necrosis. The tumor taken as a whole, on account of its composition and the large proportion of cells over basement and intercellular substance, was to be considered as decidedly malignant.

#### THE SURGICAL TREATMENT OF BRIGHT'S DISEASE.

RAMON GUITERAS of New York, who read this paper, gave an extensive review of the literature and history of the subject, and pointed out that the first operation for Bright's disease was performed by Harrison in 1878, in a case of subacute nephritis following scarlatina and accompanied by lumbar pain. The diagnosis was renal abscess, but on performing nephrotomy nothing but a medical nephritis was found. The albuminuria and the pain disappeared after nephrotomy in this case. Here then we have the first operation for a medical nephritis, but it must be remembered that Harrison had thought that in this case there was a surgical condition present, namely, a renal abscess, so that he really did not operate upon the kidney with the specific object of curing a nephritis. Since that time Harrison has operated on several cases of a similar character and noted that the relief of renal tension produced by nephrotomy induced a regression of the nephritis. Newman of Glasgow published, some years later, two cases of nephritis in which nephropexy, performed on account of the mobility of the organ, was followed by an improvement in the Bright's disease. Since 1886 a number of cases of chronic Bright's disease have been operated upon by nephrectomy and nephrotomy, usually when there was a nephralgia or a hematuria or both, or else when some surgical condition, such as stone, tumor, suppuration, etc., was suspected. Israel's work showed that the so-called essential hematurias and nephralgias are frequently dependent upon chronic nephritis, and that in such cases nephrotomy is of benefit. He does not consider, however, chronic Bright's disease without these symptoms as amenable to surgical treatment, and emphatic-

ally denies his intention of treating ordinary typical cases of Bright's disease by nephrotomy. Edebohls of New York was the first to operate upon kidneys with chronic Bright's disease with the specific object of curing the nephritis, and not simply for the purpose of relieving symptoms, or with the expectation of finding some strictly surgical condition. Edebohls operated upon eighteen patients, in sixteen of whom he performed nephropexy by a method involving the stripping of the capsule from one-half of the organ, and anchoring it to the posterior abdominal wall, while in the remaining two cases he simply decapsulated the kidneys and cut away the capsule without anchoring the kidney afterwards. There was no mortality in this group of cases and the results were such as to justify the further employment of this operation (decapsulation) as a means of treating chronic nephritis.

The author reported two cases of chronic Bright's disease, which he operated upon by stripping the capsule. The first case was that of a man, aged seventy-nine years, in which complete double decapsulation was performed, the second that of a woman, age thirty-five years, in whom a partial decapsulation and nephropexy was performed. In a third case a woman, age forty-four years, who was suffering from chronic nephritis, but who was in fair condition, collapsed on the operating table before the kidneys had been exposed, and was resuscitated with difficulty.

The first case reported by the author was operated upon over a month ago, and has already shown improvement. The second case was operated upon two weeks before the presentation of this report, and sufficient time has not yet elapsed to warrant conclusions as to its result. The third case cannot be considered, as the operation was not completed.

Other cases have been referred to the author for operation, but they were considered unsuitable, either because they did not show sufficient symptoms of chronic nephritis to warrant an operation, or because they were too far advanced to offer fair chances for a trial of this procedure.

The author concludes (1) That nephropexy is always a good procedure in a movable kidney in which chronic nephritis is present; (2) that nephrotomy has proved to be valuable in unilateral Bright's disease associated with hematuria and nephralgia, and (3) that complete bilateral decapsulation has not as yet been employed extensively enough to warrant any positive conclusion as to its value. Up to the time of writing, with the exception of Edebohls' two cases and the case here reported, no instances of decapsulation performed for the cure of chronic Bright's disease have been recorded.

#### GANGRENE OF THE PENIS; REPORT OF A CASE; PRESENTATION OF PHOTOGRAPHS.

DR. JAMES R. HAYDEN of New York reported the case of W. H. B., fifty-seven years old, married, American, printer, who was admitted to Bellevue Hospital Jan. 15, 1902. Family history

negative. Denies any form of venereal disease, local traumatism or cauterization. He was a paranoiac. Two weeks prior to admission he noticed a small black spot on the end of the glans penis which increased rapidly in size, spreading over the entire organ, giving rise to a very offensive odor. Upon admission the entire penis from the meatus to within one inch of the abdominal wall was greenish black in color and with a most offensive and penetrating odor. The line of demarkation was well marked. The urine was passed from the under surface of about the middle of the penis. Glands not involved. Operation proved effective.

#### THE SURGICAL TREATMENT OF CHRONIC NEPHRITIS.

DR. RAMON GUITERAS of New York read this paper.

#### OFFICERS FOR THE ENSUING YEAR.

The following officers were chosen for the ensuing year: President, Dr. Paul Thorndike of Boston, Mass.; Vice-President, Dr. Edwin C. Burnett of St. Louis, Mo.; Secretary and Treasurer, Dr. John Vanderpoel of New York; Council, Dr. William T. Belfield of Chicago and Dr. James R. Hayden of New York.

### Recent Literature.

*A Textbook of Surgery.* By DR. HERMANN TILLMANN, Professor in the University of Leipzig. Translated from the Seventh German Edition by BENJAMIN T. TILTON, M.D., Instructor in Surgery, Cornell University, and JOHN ROGERS, M.D., Instructor in Surgery, Cornell University. Edited by LEWIS A. STIMSON, M.D., Professor of Surgery, Cornell University. Volume I. The Principles of Surgery and Surgical Pathology. With 516 illustrations. New York: D. Appleton & Co. 1901.

The first translation of this valuable textbook on surgery was published in 1894, and was from the third German edition. Since that time there have been four editions published, and the present translation is from the seventh German edition. As the translators justly say, the recent progress in bacteriology and pathology has made it necessary to publish a second English edition. We are glad to see that the textbook is published in two separate volumes, agreeable to the German edition, and divided into general and regional topics.

The book has been revised, especially in regard to the latest researches in surgical pathology and to the most modern surgical technique. The first English edition contains 788 pages. The second English edition contains 829 pages. Many of the cuts are crude, and are not by any means worthy of the text, which is excellent. However, the volume has been brought abreast with modern surgery, and is a very satisfactory presentation of general surgery and surgical pathology.

## THE BOSTON Medical and Surgical Journal.

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### PREVENTIVE MEDICINE IN HAVANA.

THE final report of Major W. C. Gorgas, surgeon of the U. S. Army, the chief sanitary officer of Havana prior to the evacuation of Cuba by United States troops, covering the month of April, shows a continued improvement from the time the city was taken over from the Spanish authorities. The city is left, in every direction, as clean and in as good sanitary condition as an abundance of well-directed labor can make it. Not only are the streets cleaner than in cities of similar size in the United States, but the cleaning up of the interior of the houses has been accomplished by persistent effort, inspections and fines, where necessary, on the part of the Sanitary Department. This cleanliness is such as can be accomplished by sweeping, washing and manual labor, for every house in Havana still has a cess-pool somewhere on its premises, and it has not been the policy of the Sanitary Department to cause the removal of these until the sewer system is put in. Special attention has been given to the sanitation of the tenement districts, and in this respect these now challenge comparison with the similar districts of other large cities. No case of yellow fever has occurred in the last seven months, and only five cases in the whole yellow fever year. During the previous twelve years the smallest annual number of deaths from this cause was 122, the largest 1,385, and the average for the whole period 466. The only sanitary work directed against yellow fever has been the destruction of mosquitoes. The disease is entirely stamped out, and cannot occur again unless imported from outside. The city is free from smallpox, and has been so since July, 1900; it is not believed that any cases can occur save as introduced from foreign countries. "Of this, of

course, there is always danger; our intimate commerce with the ports of the United States renders us liable to infection from that source at any time. The death-rate from tuberculosis continues high, but not so high as in many of the large cities of the United States and Europe. For the year 1901 the death-rate from tuberculosis was but little over half what it was for the average of the thirty years preceding. Malaria has been greatly decreased as a result of the work of mosquito destruction. For the year 1900, the year previous to warfare against the mosquito, there were 844 deaths from this disease; during the year 1901, the first year of mosquito work, there were 151 deaths, and for the first four months of the present year but 26 deaths. The death-rate in Havana for 1898, the last year of Spanish control, was 71.88. For 1901, under American control, it was 21.77. For the first four months of the present year the deaths have been at the rate of 20.68."

The medical profession has reason to feel justifiable pride in the results that have attended the control of the sanitation of Havana by two United States physicians, Governor-General Wood and Major W. C. Gorgas, aided by the remarkable and timely work done by Surgeons Reed and Carroll, with respect to the propagation of yellow fever. The administration of Cuban sanitary affairs by the two first-named men has furnished an object lesson in municipal sanitation which it is hoped will be long remembered by the American public. That Havana, dreaded for centuries as a plague spot and centre of pestilence, should in little over three years stand forth on a higher sanitary plane than most of our Southern and many of our Northern cities, guarding against them in terror from its former scourges of yellow fever and smallpox, shows what may be done by energetic medical men, whose scientific knowledge is backed by executive power and made applicable through abundant financial resources. Such evidence as is furnished by the sanitary regeneration of Cuba by army medical officers—which is without parallel in the history of the world—abundantly disproves the statement so frequently made that the physician is not a man of affairs and cannot be trusted with the solution of practical administrative problems. It furnishes an argument for more science and less politics in matters of municipal sanitation, which it is to be hoped that the medical profession will not fail to make free use of in the future. We congratulate General Wood and Major Gorgas upon having broadened the field of action for the medical man in connection with applied sanitation, while we felicitate them upon their good work, so well performed. Their sanitary achievements have

shed much lustre upon American preventive medicine, and their work will long be remembered by their own compatriots and the new-born nation they have so greatly benefited.

#### THE TUBERCULOSIS QUESTION.

If activity in every part of the world can accomplish anything toward the extermination of tuberculosis, we certainly should expect definite results in the near future. The Congress on Tuberculosis held last year in England has no doubt done much to stimulate systematic work throughout the world. Following upon this congress innumerable investigations and a certain number of new publications have appeared, all calculated to fix public and professional attention upon this greatest problem of disease.

We are in receipt of the first number of the first volume of a publication devoted to the subject of tuberculosis under the immediate direction of Althoff, Fränkel, Gerhardt, von Leyden and Pannwitz. This pamphlet is to appear monthly as a bulletin of the Central International Bureau for the prevention of consumption. In order that it may have a wider circulation and be acceptable in foreign countries as well as in Germany, where it is printed, the text appears in various languages, German, French and English. This Central International Bureau is located in Berlin, and proposes to publish the periodical of which we have spoken regularly as the organ of the society for the prevention of tuberculosis. It is proposed in this journal to choose material which will have essentially a practical interest, not, however, leaving out of the account the necessity of a solid scientific foundation. A further object is to unify, so far as possible, the work being done in all countries against the common enemy in order that the varying experiences may be mutually beneficial. Researches on the general subject which appear in purely scientific journals will be briefly abstracted. It is also proposed that the official information from various countries regarding the general questions relating to tuberculosis, and particularly those concerning tuberculosis congresses, shall find a place in the columns of the bulletin.

We are glad to note the fact that communications will be printed in various languages. It would certainly have advanced scientific literature if this had been done long before and far more generally in various lines of work. So widespread is the interest in the general subject of tuberculosis and so important to all classes in the community, that we can have no doubt that

this new journal, under its capable editorship, will have a distinct place of usefulness.

In New York City we have just had another largely attended congress on tuberculosis, which no doubt will do its share toward furthering the general work. It has also been suggested that a congress of international character be held at St. Louis at the time of the coming exposition. Just how far such congresses are useful it is exceedingly difficult to say. We are convinced, however, that, if men prominent in the profession, and particularly in the line of work relating to tuberculosis, are willing to give the time and energy necessary, such gatherings must be of considerable value in keeping alive an interest in the subject. We should, therefore, as has been suggested by one of our contemporaries, favor a congress on tuberculosis at St. Louis, provided only that it may be held under the proper auspices and under the right leadership.

#### A FURTHER OBJECT LESSON IN VACCINATION.

It will be remembered that within a few months a Dr. Immanuel Pfeiffer made himself notorious and incidentally helped the cause of vaccination in this community by voluntarily exposing himself to smallpox without being previously vaccinated. He contracted the disease, but has lived to reiterate his faith in the non-efficiency of vaccination. This attitude was not unexpected, and is of small importance one way or the other. The world at large has taken the event as another strong indication of the value of vaccination in preventing smallpox. Whatever Dr. Pfeiffer personally may think, the fact remains that vaccination received a new impetus as soon as the circumstances of his illness became generally known through the daily papers.

It is rather interesting and at least suggestive that within a week public announcement has been made that two physicians, professing the homeopathic faith and a violent disbelief in vaccination, have been taken ill with smallpox after exposure in the course of their practices. One of these practitioners, a man well known in a neighboring town, has done what in his small power lay to encourage the cause of the antivaccinationists, by certain utterances expressing his views and printed in one of Boston's most widely read papers. These utterances no doubt carried more weight than those of Dr. Pfeiffer, already alluded to, and therefore the result should be even more influential in directing the stream of opposition to vaccination into a different and more rational channel. We are of course quite aware that even arguments of this apparently convincing character do not

always convince or even influence the bigoted, but there is a great mass of the wavering who will take the lesson to heart. It is certainly a striking fact that the physicians in charge of the smallpox hospitals in this city have one and all passed through the epidemic unscathed. It is not to be supposed that the physical condition of these overworked men was such as to afford them an immunity such as our antivaccination friends speak of. Every reasonable person will put the credit where it properly belongs—on the immunizing properties of vaccine virus. We regret the illness of anyone on general principles, but we confess there is a little balm to our feelings when we consider how unjustifiably these victims of their own limited point of view have brought their troubles upon themselves.

#### MEDICAL NOTES.

**DEATH-RATE IN CHICAGO.**—The Chicago death-rate for the year 1901 was 13.65 per 1,000 of the estimated midyear population, 1,758,025, and was 21% lower than the St. Louis rate, 25% lower than Philadelphia, 30% lower than Boston, and 35% lower than New York, even allowing these cities estimated populations based on much higher rates of increase than that claimed for Chicago. It is stated that in the first five months of the current year 11,223 deaths have been recorded, as against 10,293 in 1901, an excess of 9% in number and of 5.2% in proportion to population. More than one-half the excess thus far this year comes from the age group under 5 years, and of this the period between 1 and 5 years contributes 81%. The acute respiratory diseases, bronchitis and pneumonia, have been especially rife, and unusually fatal among children at these ages, and scarlet fever has also been excessively prevalent. Infants under 1 year of age contributed 9.5% of the excess, while the aged, those over 60 years, show a slight decline.

**SUICIDE IN CHICAGO.**—It is reported that 50 persons committed suicide in Chicago during the month of May. This is said to be the greatest number ever recorded.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, June 4, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 35, scarlatina 27, measles 102, typhoid fever 6, smallpox 22.

**THE MOSQUITO SITUATION IN BROOKLINE, MASS.**—Progress is being made in ridding the town of Brookline of mosquitoes. About one thousand catch basins have been treated with petroleum, as

well as various pools, ponds and streams. Dr. H. L. Chase, reporting on what has been done, says: That theoretically one ounce of petroleum is effective for an area of fifteen square feet of water surface, but experience shows that this is probably true only under the most favorable conditions. The pools and streams treated have varied in area from 50 square feet to 50,000 square feet, and more than one hundred gallons of oil have been used thus far.

**SMALLPOX IN MALDEN, MASS.**—According to a recent report there are nine cases of smallpox in Malden, Mass. It is expected that the Belmont School, which has been closed for two weeks, owing to the prevalence of the disease, will be opened the latter part of this week.

#### NEW YORK.

**DANGER OF ILLUMINATING GAS.**—At a meeting of the New York County Branch of the New York State Medical Association held May 26, James C. Bayles, Ph.D., formerly president of the Health Department, read a paper on "Gas Leakage and the Public Health," in which he stated that this is an evil vastly greater in its influence upon the death-rate of the city than any of the other evils to which attention is usually directed by sanitarians. "I am of the opinion," he said, "that it (illuminating gas) is incomparably the most dangerous element of that mysterious and indefinable compound which is so loosely designated as sewer gas. It is not unusual to find the atmosphere in houses vitiated to the extent of one-tenth of 1% by this gas. Health is impossible and sickness inevitable as the result of exposure to such conditions." He furthermore declared that the cost of repairs was so enormous that they would never be made by the gas companies until public opinion compelled legislation which would require this as a condition of the franchise privilege.

**DIFFICULTIES OF A SMALLPOX HOSPITAL.**—The health authorities of the village of Ossining (formerly Sing Sing), on the Hudson, have been placed in a quandary as to what to do with a smallpox patient in their charge, there being no provision for cases of the disease. At first they determined on having a pesthouse on the State farm in the vicinity of the prison. The location is stated to be a good one, but the nearest neighbors, although their residences were some distance away, obtained an injunction which put a stop to the project. Not being at leisure to fight the matter out in the courts, the Board of Health improvised a houseboat, put the patient in it and had it towed up the river to some isolated meadows, where it was anchored. It appears, however, that the locality selected is close to the

Cortland town line, and the authorities have now ordered the floating hospital moved away from their borders.

**A CRIMINAL FAMILY.**—At a meeting held during the past week, Mrs. M. J. Annable, State superintendent of rescue work of the Women's Christian Temperance Union, gave the following statistics in regard to the descendants of a woman of criminal tendencies which, she said, had been collected with much care and could be relied upon as accurate. This woman, whose occupation was keeping a disreputable house and who was addicted to vicious habits, including excessive indulgence in alcoholic stimulants, died, at the age of 51, in 1827. Her descendants have been 800 in number, and of these 700 have been criminals, all of them having been convicted at least once. There are 342 drunkards, acknowledged by all as such, and 127 are immoral women. There were 37 murderers, who have been executed for their crimes. This family has cost the commonwealth no less than \$3,000,000, this amount having been expended for their trials, maintenance in prisons, and executions.

**DEATH CAUSED BY AUTOMOBILE AMBULANCE.**—A melancholy accident occurred on May 28 in which the effort to save two lives resulted in the loss of a third. A boy eleven years old was run over and instantly killed by an automobile ambulance from the New York Lying-in Hospital, which was proceeding through the streets at a very fast rate. In the ambulance was a young parturient woman in a critical condition, and the physician in charge, in view of the urgent necessity of reaching the hospital at the earliest possible moment, had directed the driver to make quick time.

**DEDICATION OF BETH ISRAEL HOSPITAL.**—The new Beth Israel Hospital, at Jefferson and Cherry Streets, in the heart of the East Side tenement district, was publicly dedicated on May 25. It is provided with a staff of 10 visiting physicians and surgeons, a house staff numbering 6 and a corps of 50 nurses. Dr. Abraham Brothers was the chairman of the building committee, and the cost of the hospital, furnished and equipped, has been \$225,000. It has a large dispensary department in the basement. More than 12,000 visitors inspected the new building.

**VERDICT FOR DEATH OF A HUSBAND.**—The widow of Edward C. Hinsdale, who sued for \$100,000, has obtained a verdict for \$40,000 against the New York, New Haven and Hartford and the New York Central railroad companies for the death of her husband, who was killed in the Park Avenue tunnel disaster of Jan. 8 last. This is the first of the tunnel disaster suits to be decided in

New York, and the amount obtained is said to be the largest ever awarded in the city for a human life. According to the law formerly in force \$5,000 was the limit of liability in such cases.

COMMENCEMENT EXERCISES OF NEW YORK CITY TRAINING SCHOOL FOR NURSES.—Mayor Low presided at the twenty-seventh annual commencement exercises of the New York City Training School for Nurses at the City Hospital on Blackwell's Island, which were held on May 31. There were twenty-seven graduates and certificates were also awarded to fourteen nurses who had taken post-graduate courses.

COMPLIMENTARY DINNER TO DR. T. A. EMMET.—On May 22 a complimentary dinner, at which over sixty physicians were present, was given by the Celtic Medical Society of New York to Dr. Thomas Addis Emmet.

#### ARMY NOTE.

SMALLPOX ON TROOP SHIPS.—As an additional precaution against the development of smallpox on troop ships, and to assist the medical authorities at San Francisco in determining the necessity for the detention under observation of troops at that point, the War Department has ordered that troops en route to the Philippines shall be furnished with certificates that they had been medically inspected before leaving their respective stations and had been protected against smallpox. It has also been ordered that no recruits are to be sent from San Francisco until they have been long enough under observation of the medical officers there to develop any infectious disease to which they may have been exposed prior to enlistment.

#### METEOROLOGICAL RECORD

For the week ending May 24, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches
	Daily mean.	Daily maximum.	Daily minimum.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S...18	22.98	64	78	49	59	50	54	W	S	W	5	7	C. C.
M...19	23.96	56	60	51	74	100	87	E	N	E	8	5	O. R.
T...20	30.04	52	57	48	76	75	76	N	E	E	11	3	O. C.
W...21	30.28	60	72	47	50	56	53	N	E	S	4	15	C. F.
T...22	30.06	65	80	50	65	60	62	W	S	W	12	21	F. C.
F...23	29.62	73	88	58	70	64	67	S	W	S	14	16	F. O.
S...24	29.76	76	84	68	76	68	72	W	S	W	10	15	R. O.
	28.98	74	53			67							.42

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
☞ Mean for week.

#### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 24, 1902.

CITIES.	Population Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Cerebro spinal meningitis.	
New York.	3,665,352	1,332	462	24.31	13.94	3.38	.38	.30	
Chicago.	1,852,828	501	170	23.80	13.00	1.60	.40	.21	
Philadelphia.	1,349,624	468	110	23.72	12.61	2.77	4.27	.21	
St. Louis.	603,717	—	—	—	—	—	—	—	
Baltimore.	525,330	193	50	24.86	11.39	1.03	.52	1.03	
Cleveland.	411,826	—	—	—	—	—	—	—	
Buffalo.	375,742	—	—	—	—	—	—	—	
Pittsburg.	241,401	146	56	27.71	17.81	2.42	4.80	.68	
Cincinnati.	332,032	—	—	—	—	—	—	—	
Milwaukee.	304,975	—	—	—	—	—	—	—	
Washington.	289,537	—	—	—	—	—	—	—	
Providence.	185,870	42	11	16.66	11.90	—	—	2.38	
Boston.	568,730	221	51	24.86	15.36	1.36	—	.90	
Worcester.	127,387	45	16	11.11	8.88	—	—	4.44	
Fall River.	111,872	33	15	24.24	3.03	3.03	—	—	
Lowell.	99,574	54	18	11.11	25.92	—	3.70	—	
Cambridge.	96,334	21	3	38.09	9.52	4.76	—	—	
Lynn.	71,144	23	—	17.39	8.70	4.35	—	4.35	
Lawrence.	67,275	28	15	14.28	22.13	—	—	—	
Springfield.	66,854	27	4	11.11	11.11	—	—	—	
Somerville.	65,882	8	2	12.50	12.50	12.50	—	—	
New Bedford.	65,574	23	9	13.04	17.39	—	—	—	
Holyoke.	48,065	12	4	—	25.00	—	—	—	
Brookton.	43,208	6	1	—	—	—	—	—	
Haverhill.	40,392	11	2	27.27	18.18	—	—	—	
Salem.	36,567	10	1	—	10.00	—	—	—	
Newton.	36,336	7	2	14.30	—	14.30	—	—	
Malden.	35,390	11	6	18.18	45.45	9.09	—	—	
Chelsea.	35,264	8	—	—	—	—	—	—	
Fitchburg.	33,848	7	2	—	14.30	—	—	—	
Faunton.	32,759	8	3	—	12.50	—	—	—	
Everett.	27,114	4	2	25.00	—	—	—	—	
North Adams.	26,583	6	—	16.67	50.00	—	16.67	—	
Gloucester.	26,121	6	2	—	—	—	—	—	
Quincy.	25,307	5	2	—	20.00	—	—	—	
Waltham.	24,612	6	1	—	16.67	—	—	—	
Pittsfield.	22,311	9	—	22.22	33.33	—	—	—	
Brookline.	21,679	—	—	—	—	—	—	—	
Chicopee.	20,390	9	5	—	—	—	—	—	
Medford.	20,014	4	—	—	25.00	—	—	—	
Newburyport.	14,478	6	—	16.67	—	—	—	—	
Melrose.	13,384	3	1	66.67	—	—	—	—	
Westfield.	13,038	6	3	16.67	16.67	—	—	—	
Attleboro.	12,846	—	—	—	—	—	—	—	
Adams.	12,813	—	—	—	—	—	—	—	
Milford.	12,516	—	—	—	—	—	—	—	
Frammingham.	12,109	7	—	—	14.30	—	—	—	
Peabody.	11,957	—	—	—	—	—	—	—	
Revere.	11,894	2	—	50.00	50.00	—	—	—	
Gardner.	11,544	4	—	—	25.00	—	—	—	
Weymouth.	11,337	4	1	—	—	—	—	—	
Southbridge.	10,838	4	—	25.00	—	—	—	25.00	
Watertown.	10,600	3	—	—	66.67	—	—	—	
Plymouth.	10,336	—	—	—	—	—	—	—	

Deaths reported 3,344; under five years of age, 1,023; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 763, acute lung diseases 6, consumption 360, scarlet fever 60, erysipelas 8, typhoid fever 38, whooping cough 33, cerebrospinal meningitis 15, smallpox 21, measles 40, diarrheal diseases 102.

From whooping cough, New York 10, Chicago 6, Philadelphia 8, Baltimore 1, Pittsburg 3, Boston 2, Lawrence, Springfield and Hyde Park 1 each. From measles, New York 12, Chicago 4, Philadelphia 4, Baltimore 1, Pittsburg 12, Boston 3, Lawrence 1, Haverhill 3. From erysipelas, New York 3, Chicago 3, Boston 2. From smallpox New York 11, Philadelphia 3, Boston 6, Melrose 1.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending May 10, the death-rate was 17.2. Deaths reported 4,894; acute diseases of the respiratory organs (London) 231, whooping cough 141, diphtheria 79, measles 112, smallpox 62, scarlet fever 46.

The death-rate ranged from 7.5 in East Ham to 26.1 in Rochdale; London 16.6, West Ham 14.6, Croydon 12.9, Brighton 13.8, Portsmouth 13.6, Southampton 18.4, Bristol 14.3, Birmingham 19.2, Leicester 13.0, Nottingham 18.4, Birkenhead 24.6, Liverpool 22.1, Manchester 18.8, Salford 23.3, Bradford 18.0, Leeds 19.4, Sheffield 17.6, Hull 19.5, Newcastle-on-Tyne 23.1, Cardiff 13.3.



# OFFICIAL LIST OF THE CHANGES OF STATION AND DUTIES OF COMMISSIONED AND NON-COMMISSIONED OFFICERS OF THE U. S. MARINE HOSPITAL SERVICE FOR THE SEVEN DAYS ENDING MAY 15, 1902.

MURRAY, R. D., surgeon. Granted leave of absence for twenty-five days from June 1. May 13, 1902.

WASDIN, EUGENE, surgeon. Leave of absence for seven days from May 2, 1902, under paragraph 179 of the regulations, amended so that said leave shall be for three days.

GUIERAS, G. M., passed assistant surgeon. Bureau order of May 5, 1902, directing Passed Assistant Surgeon Guieras to proceed to Philadelphia, Pa., amended so that he shall proceed to Cienfuegos, Cuba, for temporary duty; upon completion of temporary duty at Cienfuegos to proceed to Philadelphia. May 12, 1902.

HASTINGS, HILL, assistant surgeon. Detailed to represent the service at meeting of Southern California Medical Society at Idyllwild, May 22 and 23. May 13, 1902.

McMULLEN, JOHN, assistant surgeon. Granted leave of absence for fourteen days from May 14. May 13, 1902. Relieved from duty at Boston, Mass., and directed to proceed to London, Eng., for duty in the office of the U. S. consul-general. May 7, 1902.

HOLT, J. M., assistant surgeon. Relieved from duty at St. Louis, Mo., and directed to proceed to Honolulu, Hawaii, and report to medical officer in command for duty stopping en route at San Francisco quarantine, for special temporary duty. May 14, 1902.

DUFFY, FRANCIS, acting assistant surgeon. Granted leave of absence for six days from May 19. May 15, 1902.

RODMAN, J. C., acting assistant surgeon. Granted leave of absence for three days. May 15, 1902.

ROWLES, J. A., acting assistant surgeon. Granted leave of absence for thirty days from May 12. May 13, 1902.

## BOARD CONVENED.

Board convened to meet at the Marine Hospital, Chicago, Ill., May 31, 1902, for the physical examination of an officer of the Revenue Cutter Service. Detail for the Board: Surgeon H. W. Sawtelle, chairman; Assistant Surgeon L. P. H. Bahrenburg, recorder.

## FOR SEVEN DAYS ENDING MAY 22, 1902.

WERTENBAKER, C. P., passed assistant surgeon. Leave of absence for one day, May 20, 1902, under paragraph 179 of regulations. Detailed to represent the service at the meeting of the Association of Military Surgeons to be held in Washington, D. C., June 5, 6 and 7, 1902. May 22, 1902.

NYDEGGER, J. A., passed assistant surgeon. Granted leave of absence for ten days from June 2. May 22, 1902.

BURFORD, HUGH, acting assistant surgeon. Department letter of May 7, 1902, granting Acting Assistant Surgeon Burford leave of absence for two weeks, amended so that said leave shall be for twenty-one days from May 15. May 20, 1902.

RICHARDSON, S. W., senior pharmacist. Granted leave of absence for thirty days from June 10. May 20, 1902.

## PROMOTIONS.

COBB, J. O., passed assistant surgeon. Promoted and appointed surgeon, to rank as such from April 20. May 21, 1902.

CLARK, TALIAFERRO, assistant surgeon. Promoted and appointed passed assistant surgeon, to rank as such from March 27. May 19, 1902.

HASTINGS, HILL, assistant surgeon. Promoted and appointed passed assistant surgeon, to rank as such from March 29. May 19, 1902.

LAVINDER, C. H., assistant surgeon. Promoted and appointed passed assistant surgeon, to rank as such from March 27. May 19, 1902.

## BOARDS CONVENED.

Board convened to meet at the Bureau May 20, 1902, for the physical examination of such officers of the Revenue Cutter Service as may present themselves. Detail for the Board: Surgeon R. M. Woodward, chairman; Assistant Surgeon B. S. Warren, recorder.

Board convened to meet at the Bureau June 16, 1902, for the purpose of examining candidates for appointment as assistant surgeon in the Marine Hospital Service. Detail for the Board: Surgeon P. H. Bailhache, chairman; Surgeon G. T. Vaughan, passed assistant surgeon; H. D. Geddings, recorder.

## SOCIETY NOTICES.

AMERICAN UROLOGICAL ASSOCIATION.—The annual meeting of this society will be held at Saratoga, N. Y., June 13 and 14, 1902.

AMERICAN MEDICO-PSYCHOLOGICAL ASSOCIATION.—The fifty-eighth annual meeting of the American Medico-Psychological Association will be held at Montreal, June 17, 18, 19 and 20, 1902.

MASSACHUSETTS MEDICO-LEGAL SOCIETY.—The annual meeting of the Society will be held on Tuesday, June 10, at 1.00 p.m., in Sprague Hall, in the Boston Medical Library Building, 8 The Fenway. Attorney-General Herbert Parker will address the meeting.

## EXAMINATION.

A board of officers will be convened to meet at the Marine Hospital Bureau, 3 B Street, S. E., Washington, D. C., Monday, June 16, 1902, for the purpose of examining candidates for admission to the grade of assistant surgeon in the U. S. Marine Hospital Service.

The oral examination includes subjects of preliminary education, history, literature, and natural sciences.

The clinical examination is conducted at a hospital, and when practicable candidates are required to perform surgical operations on a cadaver.

Successful candidates will be numbered according to their attainments on examination, and will be commissioned in the same order as vacancies occur.

## BOOKS AND PAMPHLETS RECEIVED.

Notes on Tropical Dysentery. By John Herr Musser, M.D., Philadelphia. Chart. Reprint. 1901.

Clinical Expression of Chronic Myocarditis. By J. H. Musser, M.D., of Philadelphia. Reprint. 1902.

Upton Scott, M.D., of Annapolis. His Life and Letters. By Eugene F. Cordell, M.D. Reprint. 1902.

A Textbook of Insanity. By Charles Mercier, M.B., M.R.C.P., F.R.C.S. New York: The Macmillan Co. 1902.

Inaugural Address as President of the Medico-Legal Society. By Clark Bell, Esq., LL.D., of New York City. Reprint. 1902.

On the Use and Abuse of Lavage. By John Herr Musser, M.D., Professor of Clinical Medicine in the University of Pennsylvania. Reprint. 1900.

The History of the Invention and of the Development of the Ophthalmoscope. By Harry Friedenwald, M.D., Baltimore, Md. Illustrated. Reprint. 1902.

The Antirabic Vaccinations at the New York Pasteur Institute During 1900 and 1901. By George Gibler Rambaud, M.D., of New York. Reprint. 1902.

On Streptothric Infections. By John H. Musser, M.D., of Philadelphia, Professor of Clinical Medicine, University of Pennsylvania. Reprint. 1901.

The Uniform Principle in Performing Operations for Lacerated Perineum, Cystocele, Rectocele and Prolapse. By Henry J. Kreutzmann, M.D., San Francisco. Cal. Reprint. 1902.

Spa Treatment of Gout. By Charles C. Ransom, M.D., of New York, Attending Physician to the City Hospital; Medical Director of the Baths of Richfield Springs. Reprint. 1902.

Is Leprosy the Fourth Stage of Syphilis? By Henry Alfred Robbins, M.D., Professor of Dermatology and Syphilology in the Howard University, Medical Department, Washington, D. C. Reprint. 1902.

Intratracheal Injections in the Treatment of Bronchitis. By Willis S. Anderson, M.D., Detroit, Mich., Laryngologist to Harper Hospital Polyclinic; Assistant to the Chair of Laryngology in the Detroit College of Medicine. Reprint. 1902.

Pneumonia: An Acute Self-Limited Systemic Infection. By Stephen Smith Burt, A.M., Yale; M.D., Columbia, of New York City, Professor of Medicine and Physical Diagnosis, New York Post-Graduate Medical School; Attending Physician, New York Post-Graduate Hospital. Reprint. 1902.

Perforating Ulcer of the Stomach; Operation; Recovery. By John H. Musser, M.D., Professor of Clinical Medicine, University of Pennsylvania, and Henry R. Wharton, M.D., Clinical Professor of Surgery in the Woman's Medical College; Surgeon to the Presbyterian and the Children's Hospitals. Reprint. 1901.

Local and Regional Anesthesia with Cocain and Other Analgesic Drugs, Including the Subarachnoid Method, as Applied in General Surgical Practice. By Rudolph Matas, M.D., of New Orleans, Professor of Surgery, Medical Department, Tulane University of Louisiana. Illustrated. Reprint. 1900.

**Address.****THE PRESIDENT'S ADDRESS.**

DELIVERED AT THE FIFTY-THIRD ANNUAL SESSION OF THE AMERICAN MEDICAL ASSOCIATION AT SARATOGA SPRINGS, JUNE 10-13, 1902.

BY JOHN ALLAN WYETH, M.D., LL.D., NEW YORK CITY.

SINCE the session held at St. Paul a year ago, a former president of this association, paying the last great debt to nature, has passed

"To where beyond these voices there is peace."

Full of years and beyond the limit allotted by the Psalmist, Prof. Edward Mott Moore, born in Rahway, N. J., July 15, 1814, died in Rochester, N. Y., March 3, 1902. He was one of the founders of the New York State Medical Association, a consistent and loyal friend of our national body and of an organized medical profession. Although his achievements in science were of a high order, his life was not circumscribed within the narrow limits of professional work. He was not only a skilful surgeon, bold and original, but more than this, he was a citizen of the highest type. The welfare of his neighbors, of his adopted city, state and the nation were his. May his noble example be emulated, for it is just as much our duty to be true to the obligations of citizenship as to our profession.

Before dealing with the more urgent matters of this meeting, your attention is called to the fourteenth International Congress of Medicine which is to be held at Madrid from April 23 to 30, 1903.

As your presiding officer I had the honor to receive an appointment from the Secretary of State as a delegate to represent this association at the congress, and was requested by him to appoint five additional delegates from this body. In conforming to this request the following gentlemen have accepted commissions, and have received certificates from the state department to the congress: Dr. Nicholas Senn of Illinois; Dr. Maurice H. Richardson of Massachusetts; Dr. George Crile of Ohio; Dr. Richard Douglas of Tennessee, and Dr. Edward B. Dench of New York.

It should be the duty and pride of the separate state associations to send at least one delegate to this important meeting, and in doing this to correspond with Dr. Angel Fernandez-Caro, Secretary-General, Fourteenth International Congress of Medicine, Madrid, Spain.

This session marks an era in the history of the American Medical Association, for we meet under changed conditions, and in this our trial year, while we are adjusting ourselves to the new order, we confidently ask and expect to receive not only the consideration and forbearance, but the generous help which should be accorded to this experiment in government by which we earnestly hope to avoid the embarrassments and failures that under the old régime characterized the meetings of a body so large and unwieldy as the general session.

These changes involve not only the government of the association proper, but also a changed relationship of the state association to the national body, as well as the relationship of the county to the state organization. Under the old organization our business was transacted by delegates from state, district and local affiliated societies in the proportion of one delegate for each ten members, while now, only affiliated state organizations have the right to send delegates, and these are only entitled to one delegate for each five hundred active members, or fraction of this number. These form the House of Delegates, which is further re-enforced by two members from each of the scientific sections of the association, and one each from the army, the navy and the marine hospital service. Under the old régime the state association bore the same relationship to the national body as did the city, county and district organizations. Now, only the state association is represented, and they create the legislative body of the American Medical Association. In other words, the House of Delegates is a federation of all the state associations.

The reorganization at St. Paul, having taken away from the county organization its right to send delegates, also deprived the city, district branches and other minor associations of the same privilege, requiring membership in the county society when such exists as a prerequisite to membership in the state and the American Medical Association. This ruling dropped, at least temporarily, from the rolls of the association a considerable number of physicians who had long been on the roster from state or local bodies which, by the laws then existing, were in affiliation with the National Association. While this action may have seemed unnecessary and unjust to these members (among whom were many of the most loyal and faithful supporters of the national body) for the common good, they should yield to the opinion of the majority, since calm reflection must convince any reasonable mind that one of the wisest steps the association ever took was when it made the county medical organizations the basis of membership in the national body. There will hereafter be excluded from membership that fortunately small, but none the less existing group of unworthy members of our profession who, on account of the clumsy rules which formerly prevailed, obtained a place on the roster of the American Medical Association.

To the date of the reorganization in June, 1901, the roster of this association was so inaccurate and unsatisfactory that the secretary and president-elect undertook the difficult task of obtaining a correct list of members. While one might infer that each organized state and territorial association could, from its records, furnish at short notice the names of all eligible to membership in the American Medical Association, in only a very small proportion of these subordinate bodies was a reliable list available. It then became necessary to direct a circular letter, state by state, to every name on the roster then existing,

asking for the necessary information. Since, for final confirmation, these names must be referred back to the subordinate organizations in which membership is claimed, it will be seen that some time must elapse before the completion of a perfectly reliable list. The lack of business-like methods with which our profession is charged is in a manner sustained by this admission, and it emphasizes the necessity of a thorough reorganization of all the societies in affiliation with the national body, upon practically a uniform plan.

Scarcely second in importance to a uniform scheme of reorganization is that of a uniform standard of requirements for the practice of medicine in the various states. It is of vital interest to the welfare of the profession that the question of reciprocity or interstate comity should be settled so that, without any sacrifice of the very highest requirements, a physician in practice in one state, having gone before a competent board, upon change of residence might be permitted to practice without being subjected to a second state examination in the place of his adoption. The House of Delegates will, without doubt, act upon this matter at this session.

Referring to the subdivisions of the scientific work of the association, Article V of the Constitution empowers the House of Delegates "to authorize new sections which may from time to time be organized, as the necessity for their existence arises." With increasing membership and the consequent larger attendance, it may be imperative in the future to create new sections, but this should be done only after careful consideration, and not until it is demonstrated that the material of high scientific value offered to the twelve sections now existing is more than can be utilized in the time allotted for the meetings.

The by-laws require every member to register in one of the sections, and it would be well to limit each reader to a single paper before the section chosen. The association should insist that the officers of sections exercise a most rigid scrutiny of the papers referred to them. If we are to achieve our high purpose, if we wish to attract to our organization the great bulk of the better element of the medical profession, we must present through our sections papers which demonstrate not only the high scientific attainment of the author, but the undoubted value of the material presented. We are judged by our works, and if, at our meetings, and in the publication of our papers in *The Journal*, which carries them to all parts of the earth, any unworthy material finds a place, it can but reflect discredit upon the association.

Article VI of the new Constitution says: "The House of Delegates shall have authority to provide for and to create such branch organizations as may be deemed essential to the promotion of the welfare of the medical profession."

For the present, I would not advise the establishment of these subdivisions, but ultimately it may be found necessary to divide the states and territories, according to population and geographical position, into district branches, where meet-

ings may be held at the convenience of the states represented, and without interference with the annual session of the National Association.

Let us hope that the various tri-state societies and the sectional organizations, such as the Southern Surgical and Gynecological Association, and the equally successful Mississippi Valley Medical Association, and others of like character, attracted by the high and unselfish aims of this organization, may appreciate the vital necessity of a united profession and vote themselves into district branches of the American Medical Association. Truly, in such a union there would be strength so potent, and influence so far-reaching, that we could safeguard, without doubt, the material interests of the profession, elevate still higher the standard of medical education, secure the enactment and enforcement of just and rigid medical laws, enlighten and direct public opinion in regard to the broad problems of state medicine, and demonstrate to the world the practical accomplishment of our science.

Article VII of the new Constitution, which deals with "Sessions and Meetings," refers the place and time for holding each annual session to the House of Delegates. They are also, under Article IX, empowered to appropriate funds for defraying the expenses of the annual meeting, as well as for enabling the standing committees to fulfil their respective duties.

I would recommend to the consideration of the association the propriety of selecting in each of the geographical subdivisions of the United States, in which the sessions are successively held, some suitable location which has been found to be well adapted to the work of the organization, and to which we could return when the meeting is again to be held in that section of the country. As a scientific body, intent upon fostering the growth and diffusion of medical knowledge, it is of vital importance to avoid in the selection of our place of meeting everything that could detract from the closest attention to the scientific programme. The smaller cities, with ample hotel accommodations and halls conveniently located, have always yielded a larger attendance before the sections, and consequently a greater benefit to our members, than the cities of larger size, with their multitude of distractions. Moreover, it seems scarcely in accord with the dignity of this great body to require through its committee of arrangements that the physicians of the state and place selected for the convention should be held responsible for the expenses of that meeting. Every suggestion of commercialism should be avoided, and this prosperous organization should assume the entire responsibility and management of these annual sessions.

One of the most important duties imposed upon the House of Delegates is the selection of those who conduct its business affairs. In the past the association has shown a keen discernment in securing for its trustees and standing committees men not only of executive ability, but held in high esteem as representatives of a profession which,

according to the code of ethics, "should be temperate in all things, and which requires greater purity of character and a higher standard of moral excellence than any other calling."

You will, in the regular order of business, hear the reports of your five standing committees, and I am called upon to speak of but one, namely, the Committee on Medical Legislation, which the by-laws adopted in June of 1901, directs to be appointed by the president, and to consist of one delegate from each state. In accordance with this requirement, I mailed to the president of each state and territorial organization in affiliation with the American Medical Association a letter asking him to nominate one member for this committee. To all replies to this letter the name of the delegate was sent to the chairman of the National Committee on Medical Legislation, Dr. H. L. E. Johnson, Washington, D. C. It will be remembered that at the session in St. Paul in 1901, the association ruled that the National Committee on Medical Legislation, consisting of Dr. H. L. E. Johnson, Washington City, Dr. William H. Welch, Baltimore, and Dr. W. L. Rodman, Philadelphia, should be continued until the meeting in June, 1903, and should have the same power to act in the interest of the association that they had previously enjoyed. All the legislative affairs of the association I have referred to this committee at Washington, and have authorized them to call the full committee on medical legislation for consultation, advice or aid whenever their services might be required.

In his message to Congress, December, 1901, the President recommended the establishment of a Department of Commerce and Industries. In its passage through the Senate the name was changed to that of Commerce and Labor. Before the national legislature at the same time was a bill known as the Perkins-Hepburn Bill to increase the efficiency and to change the name of the United States Marine Hospital Service to that of the United States Health Service, transferring this from the treasury to the new department.

The American Medical Association has on several occasions expressed its desire for the establishment of a Department of Public Health, either as a separate department of the government, or as one of the important bureaus of a department. Probably on account of a lack of thorough organization and co-operation, it has not been able to obtain this important recognition for the medical profession. In view of these repeated failures it would seem advantageous to the scheme of establishing ultimately a Department of Public Health that the Perkins Bill should become a law, because the United States Marine Hospital Service could then with more propriety be removed from the new Department of Commerce and Labor, into a separate and independent department. This department should be in charge of a medical officer, to direct our foreign and insular quarantine, interstate quarantine, the medical supervision of epidemics, and, in fact, all matters

pertaining to the general health of any group of states or of the entire country.

The work of this officer and bureau can only be carried out with success by the earnest co-operation of the health officers of the various localities and states, and of the advisory board for the hygienic laboratory provided for in the Perkins-Hepburn Bill, for the national and local authorities acting in harmony would be better able to prevent the importation of disease, and to stamp out epidemics which may occur despite the greatest vigilance, and this with the minimum disturbance of the resident public, and of the commercial interests of more remote sections.

As the representative organization of the medical profession of the United States, it is our duty to co-operate with the medical corps of the army in the effort to procure legislation which will not only uphold the rights and dignity of the medical officers in the public service, but will give better protection to the health and lives of our troops.

The status of the Medical Department of the United States Army is fairly stated in a circular issued by the medical officers stationed in the Philippines, in which they claim that the present condition of affairs "is regarded as a menace to the efficiency of the medical department, as it is felt to be unfair and unjust." In no other staff department is promotion so slow as in the medical department. It is graded for rank, promotion and pay below every other staff department of the army, and, with the exception of second lieutenant, is graded below the line. A medical officer, under the provisions of the present law, to obtain a colonelcy must pass through three times as many files as an officer of the quartermaster's, subsistence or pay departments; through more than twice as many files as an officer of the engineers' or ordnance departments, and more than one and one-half times as many as an officer of the signal corps. Officers of the line, having attained the rank of major, have to pass through but four files to obtain the rank of colonel, while the medical officers have to pass through nine files. All these facts are fully appreciated by the younger physicians of our country, and by the volunteer and contract medical officers, hundreds of whom are now serving with troops and are declining to become candidates for a position offering such an unpromising career and so little in the line of promotion and emolument.

The Secretary of War has been officially informed by the Surgeon-General that the number of available medical officers is being rapidly diminished, and he anticipates he will soon be unable to supply the demand for medical officers to replace those constantly returning from the Philippines, unless the prohibition placed by the Secretary of War upon the appointment of additional contract surgeons is removed. He says: "The service would no doubt be more attractive to well-educated physicians if the prospects for promotion were better, and I respectfully commend that congress be asked at the present session to add to the medical corps of the army, two

colonels, six lieutenant-colonels and twenty-five majors. This would give thirty-three additional vacancies and would furnish an incentive to volunteer medical officers and contract surgeons now in service to seek admission to the regular army. I would also recommend that the age limit for volunteer surgeons and contract surgeons who have rendered satisfactory service for two years or more be raised to thirty-six years."

No one who has carefully studied the subject can but conclude that under the statutes now in force many lives have been sacrificed and much suffering has resulted from lack of thorough co-operation between the officer in command and his chief surgeon, and without doubt it would be to the interest of the service if medical officers were always consulted with regard to the location of camps and military posts for the purpose of getting expert opinion upon sanitary questions.

In order to impress upon commanding officers the importance of military hygiene, and the greater necessity for this co-operation with the medical corps of the army, the Surgeon-General has insisted that there should be established at the Military Academy at West Point a course of instruction on military hygiene.

It is the duty of this association to lend its best efforts to the Surgeon-General, a former president of the American Medical Association, and one not only in a position to suggest the legislation which would best serve the interests of the army, but one whom we know to be zealous of the interests, rights and dignity of the medical officers of the War Department.

The committee to whom was entrusted the question of vivisection has been diligent, and it would seem successful, in its efforts to prevent unwise and injurious restrictions upon this important method of research.

The wide dissemination of the contagion of smallpox in the United States within the last few years demands the most earnest attention of the medical profession. Such ignorance or indifference to the immunizing power of vaccination is a matter of surprise in an advanced stage of civilization and, while laws for compulsory vaccination would without doubt be to the best interests of the whole people, it seems so contrary to the spirit of our institutions as to be impolitic as well as impracticable. It falls upon us as physicians to labor unceasingly to impress upon the communities in which we reside the necessity and safety of this immunizing process.

We will be wise if, from time to time, we make a critical analysis of our past, realize exactly what we are doing, and upon this, base such conduct as will assure to our successors a more satisfactory condition of our profession and a higher achievement of this association. Being human we are too apt to shut our eyes to unpleasant truths; to exaggerate the value and the importance of our own performances, and to think that what we have been taught to believe or what we wish to believe is right and unchangeable. Let us ask ourselves plainly: Is the medical profes-

sion of the United States what it should be? Has it won the influential position to which it should aspire? Has it gained the power to secure just and proper legislation? Has it lived up to its obligations, and has the American Medical Association, which claims to represent 120,000 regular practitioners of medicine in the United States, fulfilled its mission? How many of us after due reflection can consistently answer these questions other than by saying plainly and regretfully—No. And wherein lies our weakness? To say we are a part of a young and scarcely organized country; that our profession is widely dispersed over vast regions so remote from each other that contact and co-operation are difficult, will not entirely satisfy the fairly critical mind. Such excuses might have been sufficient at an earlier date, but not now. To say that, despite these and other embarrassments, we of the United States have given to mankind the unequalled boon of ether anesthesia; that, through the achievements of members of our profession and of this association medical and surgical science has been greatly enriched; that great specialties recognized the world over have been developed; that operations bold and original have been established beyond controversy; and that by reason of these various contributions to the science and art of surgery and of medicine millions of lives have already been saved, together with the merciful mitigation of suffering which all this implies. While a repetition of this may flatter our vanity, it will not wholly satisfy us when in honest purpose we realize how great are our shortcomings.

It is a fact painful to acknowledge that of the three so-called learned professions, the ministry, law, and medicine, ours is accorded the inferior position, and we who day in and day out, in every home of the land, are close in the personal friendship of our patients, respected and loved as individuals, are incapable of wielding by organization and discipline the powerful influence of a united profession aiming at a high and honorable purpose. And what have been the results of this house divided against itself? Witness the snail-like progress which marked the various steps in securing our laws for elevating the standard of requirements in medical education and for medical practice: witness the opposition to our efforts in securing better sanitary regulations, and in the struggle to protect the public from the horde of uneducated or misguided persons who, under the guise of Christian Science, osteopathy and other schisms, insist upon being permitted to take charge of and treat human beings suffering from disease without submitting themselves to the state examination legally required of us.

There are, in my opinion, two principal causes of this evident weakness of the profession: (1) The insufficient methods of medical education which have prevailed for the greater part of the first century of our national existence, and (2) the lack of organization.

The code of this association says: "Those admitted into our ranks should found their ex-

pectations of practice upon the extent of their qualifications." We stand committed as the champion of higher medical education and the elevation of the standard of requirements applicable not only to the entrance examination, but to a rigid examination before the degree is received, as well as by the state before permission to practice is granted. To this rigid examination this association, by its rules of conduct, demands another important essential. The highest order of learning, the greatest amount of skill may not make one an honor to our calling, for "there is no profession from the members of which greater purity of character and a higher standard of moral excellence are required than the medical, and to attain such eminence is a duty every physician owes alike to his patients and his profession."

The American Medical Association is the sponsor for organized medicine in the United States, and failure to accomplish this end implies the failure of this association. We must not fail, nor will we, unless we falter in carrying out the plan of reorganization in the liberal and progressive spirit which characterized the session of 1901. It is our plain duty to endeavor to bring about the adoption by the various constituent bodies of a practically uniform constitution and by-laws for each county, and for each state, modified only as the local conditions may require, and all governed by the same rules of conduct. These rules, as at present given in the code of ethics, adopted many years ago by this association, should be also a subject of serious consideration at this time, for we cannot claim consistency or be logical in argument until there is but one code for the national association and for all of the state organizations represented in the national body. This, as you well know, does not now prevail. Some years ago there lived and labored among us for the good of mankind and the honor of the profession a man whose genius was of the highest order and whose fame carried the name of American surgery throughout the civilized world. He was one of those fearless pioneers in science who found his place even on the frontier, clearing the way for those who were to follow. In 1876, at the meeting of the American Medical Association, in Philadelphia Dr. J. Marion Sims, in his presidential address referring to the code of ethics, says: "The time will come when your organic laws, like the Constitution of our country, will require modification and amendments to suit a higher intelligence, broader education and a greater destiny." In my opinion, the time has come when we can absolve ourselves from the responsibility of doing away with the inconsistencies for which we take now be properly criticised.

Such have been the changes in the statutes of a majority of the states since the code was added by the respected founders of this association that we find it insisting upon conduct on the part of our members which is contrary to the practice of the states in which they reside. For try. The

one section forbids a member of the regular profession to act upon a board of examiners which has to pass upon the legal qualifications of persons not graduates of regular medical colleges, while in thirty-eight of the states represented here, the civil statutes require these boards, which are composed in great part of members of the association, to examine, pass upon and sign certificates or licenses to practice of homeopaths, eclectics, and other subdivisions of medical practice. In six of the states, including the District of Columbia, the law requires three separate examining boards. In Mississippi, North Carolina and South Carolina, the examining boards are entirely composed of regular physicians, and in one of these states (Mississippi), while none but regulars are allowed on the board, the law explicitly says: "Distinction shall not be made between applicants because of the different systems or schools of practice that may be chosen." In almost all the states and territories regular physicians are compelled by the laws of the state in which they reside to disobey the injunctions of this section of the code of ethics.

A modification of this and other sections of the code must be a part of the liberal plan of reorganizations which we have essayed.

In conclusion, I ask this association to stand for more than the healing art. To labor for the alleviation of suffering and for the restoration of health, a noble avocation, but to teach our fellows, to avoid disaster is a prouder privilege and a sterner duty. We should be teachers of mercy. How better can we protect the public from disease in all its various forms and insidious processes than by perfecting in every county and in every community an organization which shall be vigilant and insistent upon obedience to the regulations relating to the public health?

## Original Articles.

### ON TUBERCULOSIS<sup>1</sup>

RELATION TO THE LIVESTOCK INDUSTRY.

BY J. G. ADAMI, M.D.,

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ASKED to open a discussion upon the subject of "The Veterinary Aspect of Tuberculosis," I confess that at the very outset I have been difficulties as to what to include under this term. Strictly speaking, I take it this title indicates that I should dwell upon the prevention and cure of tuberculosis in the domestic animals, and to this matter my remarks will mainly be devoted. I note, though, that a report of mine to the Department of Agriculture at Canada, upon the relationship between human and bovine tuberculosis, has been printed *in extenso* in what I believe is the official organ of this congress — a fact which would seem to indicate that the subject matter of

<sup>1</sup> Opening of the Fourth Symposium, American Congress of Tuberculosis. From Advance Sheets of the Medico-Legal Journal.



that report is to be made the basis for this discussion, and that what is now required of me is an introduction to a debate upon the intercommunicability of human and bovine tuberculosis, with all that such recommunicability or nonintercommunicability may imply.

I cannot, however, but recognize that this is only a small portion of the ground that ought to be covered; nay, more, that at this present moment it is of far greater importance, as it affects the livestock of the country, upon which all serious observers are united, rather than those regarding which there has developed some difference of opinion. If this congress is to help in molding the public mind, if it is to fortify the great and necessary work of arresting the progress of this terrible disease upon our continent, it will not accomplish that by dwelling upon the points of difference between conscientious workers, or by a debate in which we indulge in destructive criticism, destructive not only of each other's views, but also in the confidence of the agricultural community in the abundance of our recommendations.

Our duty, on the other hand, is to emphasize those points regarding which we are all agreed, so that thereby the public may see why it is that we who have studied this question are one and all so insistent concerning the need for legislative and other measures tending to control and arrest the spread of the disease.

If, therefore, I have little to say upon the vexed question of intercommunicability, it is because I am unwilling to discuss the matter, of which I have endeavored to put my views as clearly as possible in the report that is before the meeting of the congress, nor do I see reason to modify the conclusion which is indicated. It is because I am convinced that I and this congress as a whole can accomplish greater good by discussing the broader subject of tuberculosis and its bearing upon the livestock industry of this country.

Now, in the first place, as a point upon which all are in absolute agreement, it may be affirmed that under ordinary conditions tuberculosis of domestic animals does not develop by reaction of infection from human beings suffering from the disease. The infection is from animal to animal. In every case so far studied, with very rare exceptions,—in cattle, at least, the infection is well originated by the introduction of an already infected animal from without. If, therefore, at the Experimental Farm, we can under special conditions infect cattle and hogs with material taken from a case of the disease in man, it has to be recognized that for practical purposes this mode of infection may be neglected. For practical purposes we have, as I say, to keep this in mind, that infection is introduced by an animal and is propagated from animal to animal. And thus, and this is the most important point in our endeavors to arrest tuberculosis among livestock, it is possible to treat the matter wholly apart from man and considerations of tuberculosis in man. We can regard it as a wholly separate proposition.

But, in the second place, is it necessary to attempt such eradication of the disease among the domestic animals. It certainly is if (1) the disease causes or is capable of causing severe loss to the community, and if, commercially speaking, it inflicts grave losses upon an important industry, and if (2) affecting our domestic animals it is liable to spread from them to man. I put the commercial reason first, because it is, taking everything into consideration, undoubtedly the more weighty at the present moment. I will not say because it is the reason which is the more likely to influence those directly concerned in the livestock industry, though one has to regretfully admit that what immediately appeals to the pocket is more potent than human considerations, but, more especially, because at this juncture when there is doubt, not so much about the possibility of the infection of human beings from cattle, as about the extent of that infection, the very fact that there is debate about any aspects of the matter weakens the popular appreciation of the validity of what is urged in this connection.

Is the existence of tuberculosis among the livestock a menace to that industry in this country? Undoubtedly it is, and that not so much because here in America the herds are already very extensively affected, as because of its great tendency to spread. Nevertheless, in the Eastern States its ravages are already serious enough. If in Massachusetts, to give one example, the cattle commissioners estimate that about 10% of the cattle would react to tuberculin, it is a matter of urgent necessity to take active steps to arrest the disease, and Massachusetts is apparently not the State in which the cattle are most involved. With cattle, as with man, it may be laid down that the more existence is indoors, the less life is led in the open air, the more susceptible are the individuals to this disease. There have been numerous cases in the Eastern States in which every member of a dairy herd has been found a victim of tuberculosis; on the other hand, the western ranch herds, which live almost entirely, if not wholly, in the open, are with rare exceptions exempt.

But if the conditions in the states to the south of the border are the same as they are in Canada, when the disease is extending westwards, for Dr. F. H. Brown of Winnipeg calls attention to its beginning ravages in Manitoba. What we have to recognize is that once tuberculosis gains a hold among the beasts in any country, it spreads with what I may truly term appalling rapidity. Let us take the case of Denmark. There, according to the records in 1789, the disease was practically stationary except by name. In 1818 it was noted

being extremely rare, in 1840 it was rather extensively introduced in cattle imported from the neighboring State of Schleswig-Holstein, and which, ten years later, it had spread all over the first of, so that by the end of the century a considerable number of animals reacting to tuberculin, made by The Bang, gave these results—that a total admitted

of 5,306 herds contained 98,901 sound animals, to 45,889 that reacted — 31.7%, or, roughly, out of every three animals was one infected.

This same sinister extension has been equally noted in Germany. As many here know, they have in the larger German cities a singularly good system of abattoir inspection, the carcasses of the slaughtered animals being examined and passed or condemned by trained veterinarians. In Leipzig the regulations have been the same and the staff under the same management for many years, and there the statistics are as follows: Taking cows alone in 1888, 17.5% of those slaughtered showed tubercular lesions; in 1894 the percentage had risen to 38.6%; in 1895 to 43.51%, and in this last year, taking all cattle, oxen, heifers, cows and bulls, of 22,918 animals slaughtered, 7,619, or 33.24%, were found tuberculous. At the present moment it is estimated that over a large part of Germany more than 50% of the cattle are afflicted with the disease.

The same history comes to us from Australia. In the colony of Victoria tuberculosis was practically unknown in the earlier part of the century, and in 1895, 15 to 20% of the cattle slaughtered yielded evidences of the disease. Thus it is that, unless active steps be taken, and that without delay, the outlook here is of the gravest.

It may be asked why, if bovine tuberculosis has been known for centuries, is it only of late that it has spread to such an alarming extent? The answer would seem clearly to be that the spread is coincident with the greater development of the cattle industry and especially of the ease of transportation. In the old days the movement of cattle was as nothing compared to what it has become during this last seventy years; it is the frequent interchange of beasts and frequent introduction of new and tainted animals into the herds that has wrought the danger, a subsidiary influence being undoubtedly the constant attempt to improve the milk-giving qualities of herds by the introduction of highly bred and, at the same time, highly susceptible animals.

I call to the commercial and monetary significance of this spread that I would specially draw attention. Affecting the livestock industry, it affects what is far and away the greatest industry of this country. With the colossal development of manufactures and the great growth of our cities during the last few years, and with the increasing migration of the country-born into the towns, we are apt to think that manufactures, and that which is immediately connected with manufactures, namely, coal and iron mining, take a large place in the commerce of the country. No area of the kind. Agriculture easily takes the second place. Only two-fifths of the population of the United States live in towns of 25,000 inhabitants or more, three-fifths live "outside the zone of gas lights and bathtubs," and these three-fifths gain their living from the soil. The invested capital in the livestock industry exceeds that of any other in this country. Take

only the case of Chicago, one of the great business centres, not merely of the States, but of the world: it is said on good authority that the business in its stockyards during the past year exceeded the combined other industries of that city by \$20,000,000. Figures like these give us some idea of what the livestock industry means to the country, and help us to realize that anything seriously affecting its prosperity must tell very directly upon the general welfare of the community at large.

Now, while in its earlier stages tuberculosis appears to have relatively little effect upon cattle, so that the flesh can safely be employed for food and the cows may be employed for breeding purposes, it has equally to be admitted that in its later stages it brings about emaciation, that is to say, loss of flesh, it diminishes the milk flow and renders the milk unfit for human consumption! Further, it shortens the lives of the affected animals for the dairy, as again for breeding purposes, and in these and other ways renders the animal which it effects a source of very material loss to the farmer.

As pointed out by Dr. Salmon, in his returns of meat inspections made by the officers of the Bureau of Animal Industry, of 8,831,927 carcasses examined during the two years 1897 to 1899, only 7,015 were wholly condemned on account of tuberculosis, or less than 1 in 1,000. It must, however, be remembered that these inspections are almost wholly, or to a very large extent, of Western breed and of ranch cattle in the stockyards, and give us thus but a fraction of what would be the returns for the whole country. The returns for the Eastern States, could they be compiled, would be very different. Still, I am not wishing to dwell upon present as upon probable future loss. In Saxony, where from 30 to 50% of all the cattle killed are diseased, the returns for 27 towns in 1895 showed that tuberculosis was found in 22,758 carcasses; of these 5.5% had to be disposed of at a cheap rate, 2% were wholly condemned and destroyed.

What I wish you to consider is the enormous loss that would accrue to this country, with its millions of cattle, if only 1% of the animals slaughtered were the victims of advanced tuberculosis. The prospective loss is so great that this is immediately seen to be a national concern. Now, unless the progress of the disease be arrested, we must be prepared to encounter such loss. Scotland is of smaller extent than some of your states, its population and the number of its cattle are less than those of not a few of the states. In 1893, so far as I can gather from various British returns regarding the prevalence of tuberculosis, the number of cattle infected in Scotland must have been less than 25%, taking the whole country as a whole; in fact, probably less than 20%, and yet Wright<sup>2</sup> estimated the annual loss to the owners of dairy stock from this cause alone as being £440,000 (or \$2,200,000). It is losses of this order, multiplied manifold, that

*Veterinarian Journal*, 1893, p. 391.

you have to contemplate if bovine tuberculosis be permitted to spread,—losses so great that unless steps be taken now, when the disease is not extensively developed, compared, that is, with its prevalence in European countries, the cost of prevention and eradication will be so great that, as is the case now in Europe, the government cannot undertake effective measures, because the cost of anything like an active crusade, with due compensation to the farmer, would amount to so many millions that such an addition to the budget dare not be proposed.

Now, in short, is the time to act, before the disease gets "out of hand." And now I may add, what is necessary to arrest the spread of the disease is but a relatively small expenditure on the part of the different states. It costs Massachusetts about \$25,000 a year to pay for the diseased animals killed, another \$25,000 for the general cost of inspection of live stock and farm buildings. I do not say that this expenditure is sufficient for a most active crusade, but, undoubtedly, judging by the annual returns from that State, this expenditure, coupled with the legislation there enforced with reference to the testing of animals entering the State, the inspection of marketed animals and the voluntary inspection of herds, is bringing about a steady and marked decrease in the prevalence of the disease.

Indeed, everything points to the fact that taken in time the eradication of tuberculosis from a herd or from a district need not be a costly matter either for the individual or for the community. More particularly, the employment of Bang's method of isolation of reacting animals affords us a means of rendering a herd wholly free from disease in the course of from three to five years. Loss it is true there is, but this is minimal to what it was under the earlier mode of killing forthwith every reacting animal. We now know that slightly infected animals, properly isolated, have before them from one to three years of usefulness and profit, either for breeding purposes or for meat production.

It is, I know, difficult to legislate for the future: the danger must be very present in order to stir our governing bodies. But here we have such immediate danger before us and a great future danger looms imminent. It is for the facts here recapitulated and others of like order, to be brought before the public and before your legislators in season and out of season, that a national calamity may be averted. As I stated previously I regard this as the strongest reason to be brought forward at this moment for the crusade against bovine tuberculosis.

Next, as to the second reason adduced, namely, the possibility of the communication of the disease from cattle and other domestic animals to man. I state the matter correctly when I say that the majority of those who study this subject thoroughly agree that where there is but a slight and localized disease the danger from eating the flesh of such animals is *nil*, in countries, that is, in which it is the universal custom not to consume

raw meat. Only where there is extensive and generalized disease is the whole carcass to be condemned, as indeed we condemn the carcass of any animal suffering from general infection. The matter, however, very largely reduces itself to this: What is to be our stand and what legislation is to be recommended concerning the employment of the milk of tuberculous animals?

All are agreed from positive demonstration that where there is recognizable tuberculosis of the udder the tubercle bacilli may pass into the milk in countless thousands, nay, it is scarcely an exaggeration to say millions, and even where there is no udder tuberculosis with moderately extensive disease of other organs, our two observations in Montreal bear out those of Ernst and earlier observers, and being in turn borne out by the recent observations by Kempner and Rabinowitch and others, are to the effect that tubercle bacilli may pass through the mammary gland and may be found in the milk, though these observations are still contested by certain equally good observers, like Delepine of Manchester, who have not obtained the same results. My own opinion is that tubercle bacilli, as I say, may pass into the milk both where there is udder disease and where this is not present, though in the latter case the numbers are very few.

Two questions now have to be answered which do not necessarily immediately depend one on the other: (1) Is the milk containing or liable to contain these tubercle bacilli capable of infecting man? And the other, (2) is milk containing or liable to contain these bacilli to be used as a food? The first of these questions I have endeavored to answer in the report already in the hands of the members of this congress, and my opinion, as it will there be seen, is that such milk undoubtedly can set up infection, more especially in children and young, susceptible individuals. At the same time, very possibly too much stress has been laid upon this possibility of infection, namely, it seems to me from the evidence before us that while possible the infection by tubercle bacilli is not so very common. This is, I admit, a individual opinion. It would be easy to spend a whole hour in putting before you the arguments for and against in this matter of infection by means of milk, and even at the end of that time I would have to confess that it is not possible to arrive at a sure conclusion as to the relative frequency of communication of the disease by this means.

I might point out, for example, that intestinal tuberculosis in infants is singularly rare in this country as compared with Great Britain and Germany, and might draw what appears to be—and what I think to be—a sound conclusion, that the lesser frequency of bovine tuberculosis in America helps to explain the difference. But, on the other hand, taking the British and German statistics, it might be urged that many authorities are ranged into two camps, each containing able and thoughtful men—those who

mitting the relative frequency of primary abdominal tuberculosis and those who deny this.

While admitting that the arguments on the one side are very powerful (you will find them excellently put forth by Dr. Salmon in a recent Report of the Bureau of Animal Industry and by Dr. Ravenel in the May number of the *University of Pennsylvania Medical Bulletin*, yet much has to be said on the other side. Thus Biedert and Biedert<sup>3</sup> point out that in the Bavarian Highlands, where bovine tuberculosis is common and children and adults employ raw milk and fresh cheese as their main diet, for long months consuming little else, human tuberculosis is not more common than usual and bears no relationship to the extent of bovine tuberculosis in the different districts. And in Great Britain, if we are to judge from the recent article by Armstrong of Liverpool,<sup>4</sup> the returns of the registrar-general with regard to the infantile mortality from tabes mesenterica, upon which so great emphasis has been placed, are absolutely unreliable. I would have to point out that many cases of apparently primary lung tuberculosis may be due to infection through the alimentary canal, but as to the proportion of such cases we can hazard no estimate. The same is true with reference to tuberculosis of the tonsils and lymphatic glands. Such tuberculosis obviously originates from the mouth, but tubercle bacilli can reach the pharynx and so the tonsils both through the mouth and the nose, nor have we any justification in saying that the one or the other is the more likely to happen. Scrofulous lymph glands may thus be the expression of either alimentary or the respiratory infection.

Turn each way and no positive conclusions can be reached, we can only arrive at strong probabilities—with these exceptions, namely, that we have a select number of cases in which no reasoning and reasonable man can doubt that the disease has been directly conveyed from bovine sources to man, either through wounds or through the use of milk; secondly, that we have cases recorded by Lartigau and Ravenel in which tubercle bacilli resembling the bovine micro-organisms in their cultural characteristics and powerful pathogenic properties have been isolated from cases of tuberculosis in man.

We are bound to conclude, therefore, that transmission is possible and does occur, and this is more particularly in young children, but how frequently still remains a matter for individual opinion, and while I am still unable to regard the transmission as being as frequent as Ravenel in a recent remarkable address still holds to be the case, I can wholly agree with him in his conclusion, which is "that human and bovine tuberculosis are but slightly different manifestations of one and the same disease, and that they are intercommunicable. That bovine tuberculosis is therefore a menace to public health; that we are not in a position at present to define positively the extent of the danger, but that it really exists

cannot be denied; that in the past there has probably been a tendency to exaggeration, but however great this may have been, it does not justify any attempt at belittling the risk and it is folly to blind ourselves to it." I would only add that, in order to retain the confidence of the public in our recommendations, we must endeavor neither to belittle nor to exaggerate, but to place before it the calm, clear truth, and that truth is serious enough to incite to action.

This brings me to the final matter, namely, is milk containing or liable to contain these tubercle bacilli, to be used as food? To this there can only be one answer—an unhesitating *no*. The public has a right to demand pure milk and to legislate in order to secure such pure milk, free from any pathogenic germs, whether of great or of little virulence. The suggestion that the farmer and the dealer shall be permitted to provide an animal fluid for human consumption gained from diseased animals is utterly repugnant to all who consider the question for a single moment.

Only I would go further than mere legislation with regard to tuberculosis. I lay down that the community is absolutely justified in demanding milk that is free from contamination with the germs not of one but of any disease, and more, is justified in demanding that it be delivered as free as possible from putrefactive germs also. Those concerned in the supply and distribution of milk must see that it is to their interest as to that of the public to recognize these facts.

For it cannot be too strongly emphasized in connection with the dangers arising from impure milk that it is not from the possibility of conveying tuberculosis that we have most to fear, the great danger from impure milk lies in its liability to set up gastro-enteritis in those drinking it, or, in plainer words, acute digestive disturbances, with diarrhea, especially in young children. I do not know if you appreciate the terrible mortality—one far exceeding that from tuberculosis however produced—which there is among children from six months to one year, a mortality which can only be put down to the consumption of milk which is crowded with various acid producing and putrefactive germs. Let me give you some statistics from the health reports of this city of New York:

Taking the reports of the health department for the year 1896 to 1899, and taking male children alone (the notes that I have by me for female children are incomplete), I find that during these four years 913 male infants under the age of one year are registered as having died from all forms of tuberculosis, a total of 1,989 children under the age of five years.

Now consider all forms of diarrheal diseases. These we find as the figures, not 913, but 5,312 male infants under one year died from this cause, or more than five and a half times meningeal, etc., and 6,553 children under five years died from all forms of tuberculosis combined, pulmonary, abdominal, meningeal, etc., and 6,553 children under five years died from the same

<sup>3</sup> Berl. Klin. Woch., 1901, xxxviii, 1177.

<sup>4</sup> British Medical Journal, 1902, i, p. 1024.

cause as compared with 1,989 from tuberculosis.

That this terrible mortality is due to badly kept milk admits of no doubt. I need but point out to you that if on the one hand a pure milk supply be obtained for young children, as in St. Helens, England, and sundry French towns, as also here in Rochester and more than one city in America, the infantile mortality immediately drops in an extraordinary degree, as again that it is our practice as physicians the moment we are called to a case of infantile diarrhea to stop the use of ordinary milk and replace it by either the Pasteurized or the sterilized article, after the interval necessary to clear out the intestines, and that if we are called early enough we are fairly sure in these cases to arrest the disease by this simple means.

Badly kept milk, therefore, is a great cause, nay, is the great cause of infantile mortality, and our legislation should not be directed merely against the employment of milk from animals suffering from the one disease, but should be directed to insure milk that is as free as possible from all forms of contamination. And, as I have urged before, if we introduce such legislation, if we make it an offense to employ the milk of animals suffering from any disease whatsoever, and demand that the number of bacteria per cubic centimeter shall not exceed a certain number, when ready for delivery, then, doing this, we shall have removed practically all the dangers from infection by this source. Thus, while we are personally interested in tuberculosis, our endeavors must be directed towards a wider legislation.

## THE STRUGGLE AGAINST CONSUMPTION.<sup>1</sup>

BY EDWARD O. OTIS, M.D., BOSTON.

MORE than seventy-five years ago one of the most eminent physicians of his time, the celebrated Louis of France, wrote the following words: "Phthisis almost invariably terminates fatally after a space varying between a few weeks and several years." Sixty-four years later another eminent physician of France, Professor Bouchard of Paris, concluded a lecture as follows: "This disease (consumption), which has such a strong hold on humanity, is curable in the largest number of cases." Which of these contradictory statements is correct? Let us refer to some recent clinical results for the answer.

The two most prominent sanatoria for the treatment of pulmonary tuberculosis in this country are those at Rutland, Mass., and Saranac in the Adirondacks. In the fifth annual report of the sanatorium at Rutland for the year ending Sept. 30, 1901, Dr. Clapp, one of the visiting physicians, reports 67% of the incipient cases as apparently cured or arrested, and of all cases in all

stages of the disease, 50% as apparently cured or arrested. Dr. Bowditch, the other visiting physician at the same institution, reports 79% of the purely incipient cases as arrested, and of all cases in all stages 42.23% as arrested, and by "arrested" he means, as he says, cases in which cough, expectoration, bacilli and fever have disappeared, and where the appearance and general condition have been those of health. The term "cured," or "apparently cured," he does not use until, after the lapse of one or two years, the patient shows no symptoms of relapse.

In the seventeenth annual report of the Adirondack Cottage Sanatorium at Saranac, for the year ending November, 1901, Dr. Trudeau, the physician in charge, reports that of 173 patients discharged during the year in various stages of the disease, 45 were apparently cured and in 79 the disease was arrested. "Some sanatoria," says Knopf, "claim as many as 70% of cures where the patients are admitted to treatment in the incipient stages; and I have reason to believe," he continues, "that these figures are exact, for pulmonary tuberculosis in the earlier stages is indeed one of the most curable of all chronic diseases."

The evidence is overwhelming that consumption is abundantly curable, both with and without treatment, for autopsies made upon individuals dying of other diseases frequently show cured foci of tuberculosis. "As for my personal experience at the morgue in Paris," said Professor Brouardel at the British Congress on Tuberculosis last summer, "where I frequently make post-mortems on accidental deaths, I can state that in half the cases, if the person on whom the post-mortem is made has lived in Paris for about ten years, I find healed tuberculous lesions. Phthisis is, therefore, curable," he concludes, "even in its most advanced stages."

At this same congress, Professor Koch remarked in his memorable address, that it must be regarded as an undisputed fact that tuberculosis is curable in its early stages. Those of us who have had much to do with this disease can corroborate these statements from our personal experience, although of course the earlier the case of consumption comes under treatment the better the chances for recovery; yet the disease can be arrested in all stages. "I suppose you receive only the incipient cases," I remarked last summer to Dr. Walther, who is the physician in charge of Nordrach, one of the most famous sanatoria in Europe. "I take any case that comes," he replied, "for I cannot tell what case will and what will not recover." At the present time I have under observation a young girl who had disease of both lungs with cavity in one, and when she first applied at my clinic she manifested all the symptoms of advanced disease. Now, after a year or two of the open-air treatment, she looks the very picture of robust health, and is able to support herself by working.

Consumption, then, is curable; there is no shadow of doubt regarding this fact. The ques-

<sup>1</sup> Read at Concord, N. H., April 29, 1902, before the School of Instruction for Health Officers and Sanitary Conference of New Hampshire.

tion immediately arises as to the treatment. *How* is consumption cured? Not by drugs, but by what is known as the hygienic, dietetic treatment, which, in brief, consists in constant exposure to pure, fresh air day and night, abundant and proper food, scrupulous avoidance of over-fatigue, either mental or physical, and, in brief, such care of the body as will strengthen, harden and finally render it an unsuitable soil for the tubercle bacillus. Sometimes complete rest for days or weeks is imperative in the course of treatment. Sometimes moderate exercise is allowable. This treatment seems easy in the telling, but it requires strenuous exertion to carry it out, and for many natures it is almost an impossibility outside of a sanatorium. One has to be trained to it, and kept up to it by constant, continuous, firm supervision. I am sometimes almost inclined to think that, after all, the greatest value of the sanatorium is in this training, and I quite agree with Anders, who says "the principal advantages offered (in the sanatorium) are due to a rigid system of hygiene under the close supervision of competent medical officers."

With the poor it is well-nigh impossible to carry out this treatment at home, hence the incalculable value of state sanatoria for this class and the obligation of the state to furnish such provision. Many states in this country are now recognizing this duty, I am glad to say. No other treatment or attempted treatment has stood the test of time but this, the open-air treatment, as best exemplified in the sanatorium. It has and is producing the most favorable results, unapproachable by those of any other method.

This established fact, of the curability of consumption, and its easy and great curability in the early or incipient stages, and the only successful method of cure,—the open-air treatment,—cannot be too strongly impressed upon the medical profession and the public. The former, the physicians, must discover the disease early, for that is the golden opportunity for treatment. As Prof. Clifford Albutt well says: "There has been much supineness in the matter of early diagnosis, and supineness bred of pessimism, of despair. Let us bring the inspiring message of optimism, of enthusiasm, and let every physician, however modest his sphere, remember that upon his alertness depends the life of the sick man and the stamping out of infection. The incipient case of today is the advanced case of tomorrow. Never let muscular strength, red cheeks or a well-formed chest blind us to canker within."<sup>2</sup>

In the writer's judgment, every person who consults his physician, complaining of being run down, of loss of strength, shortness of breath, whether or not he has a cough, should receive a very careful examination of the lungs; on the other hand, the people should likewise seek medical advice when they feel conscious of loss of strength, weight and appetite, or begin to be a little short of breath. When the diagnosis of pulmonary tuberculosis is once made, the patient

should be frankly told the nature of his disease, and the vital importance of immediate recourse to the open-air treatment, with all that that implies, should be impressed upon him. He should be made to understand that only by strenuous, persistent, patient effort can he recover, and that medicine is of very secondary importance. He should also be carefully instructed as to the means of avoiding infecting others.

But prevention is better than recovery, even if the latter were assured in every case, and prevention is possible, because we know now the true nature of the disease. We know that it is caused by a parasite, the tubercle bacillus, and hence is infectious, contagious or communicable. We know that the channels by which this infection is conveyed are accessible and controllable, and that they are chiefly the dried sputum of a patient suffering from the disease. "This parasite," says its renowned discoverer, "is a visible, palpable enemy, which we can pursue and annihilate just as we can pursue and annihilate other parasitic enemies of mankind." If it were practicable to isolate every patient at the present time afflicted with pulmonary tuberculosis, the disease, in a comparatively short period of time, would be stamped out as completely as leprosy was in central Europe in the Middle Ages, through isolation in leper houses. Of course isolation in every case is impracticable, and we must, therefore, proceed on less drastic and slower means. We must, so far as possible, control the tuberculous sputum, and at the same time do what we can to render the human soil unsuitable for the growth of the tubercle bacillus. This latter is accomplished by whatever means tend towards the improvement of the health of the people: better sanitation, public and private; improved housing; better preparation of food; more fresh air in living and sleeping rooms.

In a recent conversation with one of the commissioners of Minnesota, who were investigating the subject of state sanatoria, he told me that consumption was most prevalent in his State (Minnesota), not in the crowded portions of the cities, as is most frequently the case, but among the Scandinavian farmers in the country districts, and the cause assigned—which I doubt not was the correct one—was that during the cold winters the farmer shuts up his house tight and breathes and rebreathes the same impure air. May not this state of things be a common one among the New Hampshire farmers? Further, sufficient rest after labor, personal care and cleanliness, and the education of the individual in habits of wholesome personal hygiene are all important. In brief, all sanitary measures which will render our houses, streets, towns and ourselves clean and healthy, all tend towards rendering the individual sterile to the tubercle bacillus.

To control the tuberculous sputum, we must, as far as possible, have knowledge of the existing cases of consumption; hence the reason for compulsory notification. The people must be instructed as to the dangers of promiscuous spitting.

<sup>2</sup> Address delivered at the British Congress on Tuberculosis.



As you are aware, laws against this habit now exist in many places. We must instruct the tuberculous and their families and friends how safely to dispose of the sputum, and that whenever the patient arrives at the stage of softening and is confined to his bed, he should be placed in a room by himself, for there is always the possibility of infection when others occupy the room with him. Again, the room which has been occupied by a tuberculous person should be sufficiently cleaned and disinfected.

Sanatoria should be provided at the expense of the state or community for the poor consumptive, who is in the curable stage of the disease, and means of isolation in a consumptive hospital or other institution for the advanced hopeless cases who, from ignorance, helplessness or willfulness, cannot or do not safely dispose of their infectious sputum. Further, the question of permitting a tuberculous individual with tubercle bacilli in his expectoration to pursue his occupation where infection to others is possible through the so-called drop infection from cough or carelessness in care of the sputum, is one of serious consideration. A cook, waiter, janitor, clerk, house servant, teacher, pupil, baker, or one who handles food of any kind may be the medium of spreading tuberculosis, if he is in the infectious stage and evidence is not wanting to prove this. If such persons are removed from their occupation for the public protection, should not the public, in turn, afford them suitable treatment as well as isolation in a sanatorium, and in addition some support to their families, bereft of the wage-earner?

All this seems a colossal undertaking, but the example of other states and countries teaches that it can be done, and the loss and suffering entailed by this most prevalent and destructive disease warrants, nay, demands, the effort. The public or state sanatorium subserves three most important purposes: (1) It affords the best means of cure; (2) it isolates the consumptive; (3) it sends forth teachers, in its cured patients, of wholesome hygienic living and of the avoidance of danger from the sputum.

Since the discovery that pulmonary tuberculosis is communicable or contagious, an obligation is put upon the state to protect itself as in the case of other contagious diseases, and in doing so, to afford the unfortunate victim of the disease an opportunity of recovery when private means are wanting for this purpose. It is, moreover, an economic measure, for consumption is most prevalent at the most efficient working period of a man's life; and the value of the labor of those saved by sanatorium treatment will, in the long run, more than compensate for the outlay in the construction and maintenance of the sanatorium. The insurance societies of Germany which insure against sickness and old age, are finding it more economical to send their consumptives to a sanatorium, and have them again returned to their work with their disease cured or arrested, than to pay them insurance through the long disablement

caused by the progressing disease. The statistics of the German Imperial Board of Insurance show that in 1897 and 1898, 8,200 insured men and women were treated, and of these, 5,848, or 71%, left the sanatoria fit for work.\*

Since the people in Massachusetts have observed the marvelous results of the sanatorium treatment at Rutland, and the instruction spread broadcast over the State as to the avoidance of the disease, through those treated and cured at the sanatorium, they not only willingly and eagerly tax themselves for the continued maintenance of this institution, but there is at the present time a bill before the legislature of that State for an appropriation for a second similar institution. Almost every country now recognizes the value of the sanatorium. Germany at the present time has 68 sanatoria for its poor consumptives and 19 for paying ones, affording accommodation in the course of a year for 20,000 patients. England has many free and paying consumptive hospitals and sanatoria. Recently Sir Ernest Cassel placed at the disposal of the king \$1,000,000, which his Majesty proposes to devote to the establishment of sanatoria, in view of the enormous prevalence of tuberculosis. Russia, France, Austria, Belgium, Norway, Holland, Italy, Canada, Spain, Cuba and others either have sanatoria already established or in construction or contemplation. In this country every New England state and many of the middle and western ones have now bills before their legislatures either for an appropriation for a sanatorium or the appointment of a commission to consider the matter. In a comparatively few years I feel certain that at least the majority of the states will have one or more sanatoria, and thus we shall see the whole civilized world successfully and humanely treating their consumptives, and in just so far protecting themselves.

In the Middle Ages, who ever thought that leprosy, then well-nigh universal over western Europe, would ever be exterminated? But leper houses accomplished it. I do not mean, however, to say that sanatoria alone will exterminate consumption, though they will greatly aid in so doing. We must also labor, as I have indicated, in the way of general prophylaxis. Educate the public as to the danger of infection. Teach them that in the consumptive, and in him alone, resides all the danger, and that when he expectorates or coughs out tubercle bacilli in his sputum where it can become dried, then the army of infecting micro-organisms is on its march of death and destruction, for it has been estimated that a consumptive emits daily 800,000,000 tubercle bacilli. We must labor to disabuse the public of their old erroneous ideas of consumption regarding its incurability and inheritance. It is most difficult to eradicate this settled conviction of inheritance, and most people, I suspect, still believe it. It was a very natural conclusion to draw when one saw member after member of the same family

\* Hillier: *Int. Aspect of the Control of Tuberculosis*, read at the British Congress on Tuberculosis.

succumb to the disease. "Now, however," says Koch, "it has been demonstrated by thorough investigation that though hereditary tuberculosis is not absolutely non-existent, it is, nevertheless, extremely rare, and we are at liberty, in considering our practical measures, to leave this form of origination entirely out of account."

Associations for the prevention of tuberculosis now exist in almost every civilized country, whose object is to disseminate information regarding tuberculosis, to educate public opinion, to aid state and local boards of health, and to initiate efforts in various ways towards prevention. An immense amount of good work has already been accomplished by these means. I have only to refer, as an example of this kind of effort, to the great National Association for the Prevention of Tuberculosis of England, with its local branches, which culminated in the Congress on Tuberculosis held in London last summer. How much can be accomplished by these various methods of prevention is shown by the decrease of mortality from tuberculosis in Prussia in the years 1889 to 1897, as quoted by Koch in his address before referred to. Before 1889 the average mortality was 31.4 per 10,000, while from 1889 to 1897 it was only 21.8 per 10,000, which meant that in that space of time the number of deaths from tuberculosis were 184,000 less than was to be expected from the average of the preceding years. Again, in New York the mortality from tuberculosis has diminished more than 35% since 1886. In all I have said I have taken it for granted that we all realize the enormous prevalence of tuberculosis and that it is a universal plague, annually destroying 3,000,000 people in the whole world and infecting yearly about 15,000,000,—an appalling number indeed!

But our hope in the struggle is founded upon four great facts: (1) That pulmonary tuberculosis is contagious and not inherited; (2) that it is avoidable; (3) that it is curable; (4) that the sputum of the consumptive is the main source of infection, and this is accessible and can be controlled.

I close with the words of a recent writer, himself a victim of tuberculosis and cured by the sanatorium treatment at Nordrach: "When every consumptive who needs it will receive sanatorium treatment at the general expense, and be ensured, where necessary, suitable work and life conditions thereafter, then will the days of this scourge be numbered. Then will man no longer be called upon in the bloom of his manhood to face, with his mental faculties unimpaired, a death by inches. Then will break the dawn for a healthier and happier people."<sup>4</sup>

ADOLF KUSSMAUL, formerly professor of medicine in the University of Heidelberg, died in Heidelberg May 28, 1902, at the age of eighty years. He was widely known for his work in aphasia and for the practical introduction of the stomach pump into medical practice.

<sup>4</sup> James Arthur Gibson; Westminster Review, April, 1902.

## CYSTOSCOPIC APPEARANCES IN NON-TUBERCULAR CYSTITIS AND PYELONEPHRITIS IN WOMEN.

BY EDGAR GARCEAU, M.D., BOSTON,

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(Concluded from No. 23, p. 592.)

### CASES IN WHICH THE BLADDER AND UPPER URINARY PASSAGES ARE INFLAMED.

The first characteristic that attracts notice is the frequency with which some alteration from normal occurs about the orifice of the ureter on the side corresponding to the lesion above. Thus, in the author's list of cases, out of the nine, in eight this is seen. In Brown's list we are not informed with exactness in all the eight cases as to this point. In three, however, there is positive assurance of such alteration, and in three others either no direct reference is made with regard to it or we are left in doubt. Thus, in eleven out of the seventeen cases there is direct evidence given by cystoscopy which at least excites suspicion that the upper urinary passage on that side is diseased.

Analyzed, these cases are as follows: Case II: Calculus in ureter and in kidney, corresponding eminence much enlarged; small punctate ulcerations all around the ureteral orifice; opposite ureteral eminence normal. Case III: Pyelonephritis and strictured and dilated ureter. Corresponding eminence ulcerated, and has disappeared. Orifice found by seeing pus well up out of a small pit; ulcerations of bladder around orifice; opposite ureteral eminence normal. Case IV: Ureteritis. Corresponding eminence enlarged and surface very red; opposite eminence normal. Case V: Probable calculus of right kidney and possibly of left one; ulcerations around left ureteral eminence; right ureteral eminence normal. Case VI: Pyelonephritis and stricture of ureter. Corresponding ureteral eminence obliterated; cicatricial tissue marks its site; ulcerations in neighborhood; opposite eminence normal. Case VII: Ureteritis and pyelitis. Stricture of ureter. Corresponding eminence enlarged and surface red; opposite eminence normal. Case VIII: Ureteritis. Corresponding eminence enlarged and surface red; opposite eminence normal. Case IX: Ureteritis. Corresponding eminence enlarged and redder than normal; opposite eminence normal. Case C: Pyelitis. Corresponding eminence injected. Case D: Calculus of kidney. Reddening and "puffiness" of corresponding eminence. Case E: Calculus of kidney. Corresponding eminence. "Infection about the left ureteral orifice."

It is fair to assume, therefore, that if lesions are present at or about a ureteral eminence, we may expect to find lesions in the upper urinary tract on that side. Attention is particularly directed to the cases in which the ureter was undoubtedly diseased, especially the cases of ureteritis (Cases IV, VI, VIII and IX). In these cases the eminence was enlarged and the surface red.

It is believed that this will be found to be a valuable diagnostic sign of ureteritis, though of course the number of cases is too small to allow positive deductions to be made. In the three cases of pyelonephritis with diseased ureter (Cases I, III and VI), in which there was stone in the ureter (Case I) and strictures (Cases III and VI), we find marked changes in the nature of ulceration and cicatrization; so that we may presume that the more extensive the ureteral disease the more marked the changes to be observed at the ureteral orifice.

These observations are quite in line with those observed in tuberculosis of the ureter and kidney, provided the bladder is affected also, for numerous observations are now on record which confirm this statement.

The analysis of the remaining six cases is as follows: In Case I the bladder is so small as to forbid deductions being drawn as to the relative size of the eminences. In Cases G and H the bladder is normal and the inflammation is confined to the kidney. In Cases B and F no mention is made of lesions in the vicinity of the ureteral orifice of the affected side. In Case A, however, a peculiar condition of affairs exists. It is the left kidney which is diseased, but the left ureteral orifice is normal and the right eminence is described as puffy and deeply injected. The urine from the right side is normal, while that from the left is purulent. No explanation is offered, and not so much would be thought of it were it not for the fact that in Case V very much the same condition exists. Here we have all the symptoms referable to the right kidney, including a large tumor on the right loin, and yet the right ureteral eminence is perfectly normal. Ulcerations are observed about the left orifice, from which, however, purulent urine has been collected.

The calculus cases are as follows: Cases II, A, D, E and H. In three of them (Cases II, D and E) the ureteral eminence is altered, and in the remaining ones it is not (Cases H and A). In the latter the bladder is described as normal. We may conclude, therefore, that in most cases of inflammation of the upper urinary passages, provided the bladder shows evident lesions of inflammation, that those lesions will be more marked in the neighborhood of that ureteral eminence corresponding to the diseased tract; we may also add that occasionally it happens that the bladder does not show inflammatory changes, although there is an inflammatory process going on in the kidney or in the ureter; in such a case the evidence is clear that the infection has been renal or ureteral primarily, and that the inflammation has not yet reached the bladder.

#### CASES IN WHICH THE BLADDER ALONE IS INFLAMED.

**CASE I.** Female, age 63. Decrepit; syphilitic necrosis of forehead; poor general health; chronic diarrhea. Symptoms: Had bladder trouble five years ago at time of operation for lacerated perineum. Recent symptoms two months duration. Frequent micturition, ten times a day, three times by night; no pain, con-

stant desire to urinate, slight tenesmus. Cystoscopy: Large, flabby bladder; throughout the whole extent diffuse hyperemia, but especially on trigone; granular looking. The color of the bladder is not scarlet red, but rather of a pink hue. Ulcers, none; patches of redness, none. Urine: Albumin,  $\frac{1}{4}\%$ ; sediment, considerable, consisting of pus chiefly, many caudate epithelium, some small round epithelium, few medium epithelium, many hyaline and granular casts, some blood, many bacteria; no tubercle bacilli. Urines from both ureters normal as regards inflammation of upper passages. Result: Yielded at once to mild bladder douches of permanganate of potash and urotropin internally. Causation, probably colon bacillus; infection from chronic diarrhea.

**CASE II.** Female, age 35. General health good. Symptoms: Duration, one year. Has had vesical symptoms in attacks, with intervals of freedom from symptoms; urination every two hours by day, and the same by night; pain during and after the act, sharp and cutting, lasting three minutes. Cystoscopy: Whole bladder diffusely red, especially so about trigone, vesical neck and urethra. Ulcers: a few spots on posterior wall  $\frac{1}{4}$  cm. in diameter, of superficial ulceration, surrounded by hyperemic zones; eminences, very red and swollen. Urine: Acid; trace albumin; sediment, very much, consisting of pus chiefly, some small round epithelium, a few caudate epithelium, squamous epithelium and calcic oxalate crystals; no tubercle bacilli. Result: Treated with mild carbolic acid washes and local applications of nitrate of silver fused on end of a probe. Cured in six weeks; no recurrence.

**CASE III.** Female, age 31. Poor general condition. Cystocele, and rectocele, endometritis. Symptoms: Duration not ascertained, but a considerable while. Urinates six times a day and three times by night; no pain. Cystoscopy: Urethra, vesical neck and trigone diffusely red; blood vessels of the bladder injected. Patches of injection here and there on posterior bladder wall just above trigone. Ulcers: Very small ulcer on trigone just behind entrance of urethra,  $\frac{1}{4}$  cm. in diameter, yellow base. Result: Very obstinate (symptoms later probably due to cystocele); treated with fused nitrate of silver, local applications, and permanganate of potash injections. After seven months of treatment perineorrhaphy done. Improvement followed, and six months later much improved. Remarks: Illustrates influence of cystocele in prolonging symptoms. Urine: Amount, 1,600 cc.; urea, 13.9; uric acid, .458; relation of uric acid to urea, 1 to 30; color, normal; phosphates, 4.27; chlorides, 9.3; specific gravity, 1.014; solids 52.19; reaction, acid; indican, normal; sugar absent; albumin absent; sediment, bacteria, very few pus cells, a few granular epithelium, few blood corpuscles; no tubercle bacilli.

**CASE IV.** Female, age 22. Morphinomaniac; retroversion and lacerated cervix and perineum. Symptoms: Has had no special symptoms lately, but formerly had some increased frequency of micturition. Was examined under ether while operation for tears and retroversion was being done. Cystoscopy: Vesical neck, urethra very much injected; whole bladder injected also. Ulcers: Several ulcers seen on posterior wall of bladder 1 to 2 cm. in diameter, with yellow bases and hyperemic areolae; one necrotic ulcer containing a slough; patches of intense redness seen on posterior wall; eminences swollen and red. Urine: There were 405 cc. in 24 hours; urea, 10.93; uric acid, .503; relation of uric acid to urea, 1 to 21; color, high; phosphates, 1.21; chlorides, 1.65; sulphates diminished; specific gravity, 1.020; solids, 18.87; reaction, acid; indican, normal; albumin  $\frac{1}{4}\%$ ; sediment, large, consisting of pus chiefly, some blood, numerous bacteria and micrococci, few squamous epithelium, few granular and hyaline casts, necrotic shreds; no tubercle bacilli. Result: Passed from observation. Remarks: Did morphin entirely arrest symptoms?

**CASE V.** Male, age 39. Typhoid fever in 1893; pyuria on admission to hospital; continued pyuria up to 1900, No. 8.

<sup>1</sup> H. H. Young's Case, Johns Hopkins Hospital Reports, 1899 to 1900, No. 8.

to 1897. In 1898 typhoid bacillus found in urine. In January, 1900, cystitis and pyuria still present. Persistent persistence of typhoid bacillus, in spite of treatment with irrigations and urotropin. Typhoid fever in 1893. Symptoms: First seen in 1898. Urination once at night and three times a day; no pain; no hematuria. Duration seven years. Cystoscopy: Entire vesical mucosa in state of inflammation; generally congested, red in color, individual blood vessels not visible, and numerous small ulcers covered with grayish fibrin here and there. Trigone presented a granular surface, deep red in color. Urine: Cloudy; reaction slightly acid; albumin .025 to .075%; sediment, pus chiefly, epithelial cells of squamous variety, occasional granular casts, typhoid bacilli abundant. Result: Urotropin had some effect in diminishing the numbers of bacilli; had bichloride mercury injections also, but never succeeded in curing the cystitis. During course of treatment had instrumental gonococcus infection of bladder on top of typhoid infection; no appreciable difference in symptoms made. Remarks: Obstinate to treatment. Patient not cured.

CASE VI. Female, age 29. Always delicate. Both ovaries and appendix removed during course of cystitis. Family history negative. Symptoms: One year's duration; frequent micturition, with pain during and after, lasting two minutes; urinates ten times a day and four times at night. Cystoscopy: Urethra and vesical neck slightly redder than normal, trigone very red and dull in color, whole bladder slightly redder than normal. Ulcers, none; eminences very red and swollen. Urine: Albumin, slight trace; acid; sediment, slight, consisting of small amount pus, few squamous epithelium, few small round epithelium, calcic oxalate crystals, no casts; no tubercle bacilli; right and left ureteral urines negative. Result: Treated with mild nitrate of silver vesical injections daily for six weeks. Cured; no recurrence after a year. Remarks: Mild infection probably. Guinea-pig tests in case of bladder, and both ureteral urines negative. A bit of bladder excised for examination showed in sections mild grade of inflammation.

CASE VII. Female, age 40. Ischio-rectal abscess, discharging seven years; salpingitis; poor general health. Symptoms: For past six years has had attacks of cystitis at different times; frequent micturition, especially lately, when another attack came on; urination every fifteen minutes by day, every hour by night; tenesmus; constant desire to urinate. Cystoscopy: Urethra and bladder, including trigone, injected, especially latter; here and there patches of greater redness, 2 to 3 cm. in diameter. Ulcers: A few small superficial ones on the posterior wall. Eminences hyperemic, and present several small yellow points. Urine: Amount, 800 cc.; urea, 15.12; uric acid, .588; relation of uric acid to urea, 1 to 29; phosphates, 1.88; chlorides, 4.64; sulphates diminished; specific gravity, 1.014; solids, 26.09; reaction, slightly alkaline; indican, normal; sugar, absent; albumin, slight trace; sediment, considerable, consisting of pus chiefly, squamous epithelium, few granular casts and amorphous urates; no tubercle bacilli. Result: Treated with permanganate of potash douches 1:3000, and nitrate of silver applications. Cured, but hyperemic patches remain in the bladder. Remarks: Cystitis, probably due to infection from fistula in ano. Cured of cystitis after operation for fistula.

CASE VIII. Female, age 60; married; menopause eight years ago; pruritis vulvæ three years ago; father died of phthisis, also two brothers; thin, spare woman; energetic; nervous. Symptoms: Poor sleep; general health good; duration bladder symptoms, two years; incontinence at first; sharp, darting pain in urethra after micturition, lasting two minutes; constant desire to urinate; urination every half-hour by day, every two hours by night. Cystoscopy: Vesical neck, urethra and trigone scarlet red, bladder redder than normal; patches of redness 1 cm. in diameter here and there, which bleed easily on being touched. Ulcers, none; eminences swollen and much injected. Urine: Acid; albumin, trace; sediment, very slight, consisting

of pus chiefly, some blood, few sheets squamous epithelium, some small round epithelium, few granulated casts, bacteria; no tubercle bacilli. Result: Treatment was urotropin and antiseptic irrigations, with local applications of solid nitrate silver to patches; only partial relief after eighteen months' treatment; refused cystotomy. Remarks: Obstinate to treatment suggests gonorrheal infection; no cultures made; guinea-pig test, negative.

CASE IX. Female, age 26. General health good; strong, active woman. Symptoms: Has had three attacks of frequent, painful micturition, lasting a few weeks each, during the past year; present attack, two months' duration. Cystoscopy: Urethra and vesical neck abnormally red, as well as trigone; whole bladder redder than normal; a few patches of greater redness here and there. Small ulcer on right side, just inside sphincter; yellow base, hyperemic edges. Urine: Sediment moderate, consists of pus chiefly, squamous epithelium, some blood; no tubercle bacilli. Results: Treated with local applications, solid nitrate of silver and boracic acid solutions. Cured. Remarks: Mild grade of cystitis with ulcerations.

CASE X. Female, age 21; single. Never ill; negative family history; well developed; hysterical blindness; very nervous. Symptoms: Urinates every half-hour by day, four times at night; some tenesmus; general health good. Cystoscopy: Bladder universally reddened, especially trigone and vesical neck; a few small superficial ulcers, with yellow bases, 1 cm. in diameter, on posterior wall; eminences not remarkable. Urine: In 24 hours there were 660 cc. acid; urea, 14.02; solids, 30.75; albumin, 1%; sediment, pus chiefly, some blood corpuscles, few squamous cells, few small round cells, few hyaline and granular casts; no tubercle bacilli. Result: Recovery, under antiseptic irrigations and local applications of solid nitrate of silver. No recurrence. Remarks: Mild grade of cystitis of unknown etiology.

CASE XI. Female, age 26. Salpingitis; rather weak and delicate. Symptoms: Duration not ascertained, but a good while; incontinence, if cannot relieve bladder; frequent micturition, every half-hour by day, four or five times at night; some tenesmus; history of catheter infection. Cystoscopy: Intense injection of urethra, vesical neck and trigone; whole bladder likewise slightly injected. A few ulcers, superficial in character, with yellow bases and surrounded by hyperemic zones, found on the anterior and posterior bladder walls. Urine: Sediment, slight, consisting of a few blood corpuscles, some pus, a few small squamous epithelium, a few small round epithelium; no tubercle bacilli. Result: Treated with local applications of solid nitrate of silver to the ulcers, and vesical irrigations of weak carbolic acid. Cured in three months.

CASE XII. Female, age 30; robust. Symptoms: Duration not ascertained; urinates every hour by day, twice at night; some tenesmus; has soreness in the urethra. Cystoscopy: Vesical neck, urethra and trigone markedly injected; several small ulcers on posterior wall, with hyperemic zones. Urine: Albumin, slight trace; sediment, slight, consisting of pus chiefly, some blood, squamous and medium-sized epithelium; no tubercle bacilli. Result: Treatment by buchu and occasional applications of nitrate of silver stick. Cured in three months; no recurrence. Remarks: No vesical injections.

CASE XIII. Female, age 30. Symptoms: Duration, one year; intervals of complete absence of symptoms; urinates now six or seven times a day, twice by night; slight burning pain; slight tenesmus. Cystoscopy: Whole bladder much injected, especially about the left ureteral orifice; no ulcers; patches here and there. Urine: Albumin, slight trace; sediment, considerable, consisting of pus chiefly, some blood, few squamous epithelium, some small round epithelium; no tubercle bacilli. Result: Injections of permanganate of potash. Cured in one month.

CASE XIV. Female, age 27. Has had cough for past six years; delicate. Symptoms: Duration, two months; urinates six to eight times a day, but not at

all at night; burning sensation in urethra; slight tenesmus. Cystoscopy: Urethra, vesical neck and trigone very red; whole bladder redder than normal; just below the right ureteral eminence are three very small ulcers, with yellow bases. Urine: Albumin, slight trace; sediment, slight, consisting of pus chiefly, some blood, few squamous epithelium, free and in sheets; no tubercle bacilli. Result: Local applications of solid nitrate of silver. Rapid cure under buchu, vesical injections of carbolic acid solution and sandal-wood oil. No recurrence after four years.

CASE XV. Female, age 47. Phthisical history in family; oöphorectomy three years ago; delicate looking. Symptoms: Duration, six months; frequent micturition, seventeen or eighteen times a day, five or six times at night; painful during and after; constant desire to empty bladder; tenesmus. Cystoscopy: Whole bladder injected, especially the trigone, vesical neck and urethra; in left hemisphere six granulations are seen just above trigone on posterior wall, are red, elevated and shiny and close together; in size 2 mm. in diameter; no ulcers. Urine: Amount 1,610 cc. in 24 hours; urea, 32; uric acid, 1.67; relation of uric acid to urea, 1 to 19; color, normal; phosphates, 3.07; chlorides, 12; sulphates normal; specific gravity, 1.015; solids, 52.42; reaction, acid; indican, normal; sugar, absent; albumin, slight trace; sediment, considerable, consisting of pus chiefly, some blood, some squamous epithelium, few small round epithelium, some caudate epithelium, few hyaline casts; no tubercle bacilli. Result: Treated with permanganate potash douches and local applications of nitrate of silver fused on a probe. Partial cure in two months. Lost sight of. Urinated six times a day, and not at all at night, when last seen.

CASE XVI. Female, age 40. Came under observation in March, 1896. Cystitis for eight years; no clear cause known. Symptoms: Urination every hour by day, three or four times at night; some tenesmus and pain; symptoms getting intolerable; duration, two years. Cystoscopy: Whole bladder very red; blood vessels largely dilated; ulcers on anterior and posterior walls; numerous patches of injection. Urine: Albumin, large trace; sediment, large, consisting of pus chiefly, squamous epithelium, small, round and medium epithelium; reaction, acid; specific gravity, 1.016. Results: Vaginal cystotomy by Dr. Geo. Washburn; treated subsequently by the author. Much trouble with the fistula from collection of lime salts on its edges. Constant attention obviated the difficulty. Fistula closed in two years. Had no trouble with the bladder whatever up to time of her death from pneumonia two years later. The urine, examined after the fistula was closed, entirely normal. Remarks: Illustrates how chronic cystitis may remain localized to bladder without inflammation ascending to kidney.

CASE XVII. Female, age 65. Cystitis symptoms for ten years. (Probably had hyperemia of bladder in the first instance.) General prolapse the exciting cause. Symptoms: Some partial retention owing to difficulty in starting the stream; urinates every hour during day, once or twice at night; some tenesmus. Cystoscopy: Whole bladder decidedly redder than normal; blood vessels injected, especially the finer ones; surface of bladder dull looking and granular. No ulcers; no patches. Trigone redder than rest of bladder and streaky. Both ureteral eminences normal as to orifice and size. Urine: Albumin, very slight trace; sediment, slight, consisting of chiefly squamous epithelium, a few hyaline and granular casts, and a little pus. Result: Still under treatment. Permanganate of potash injection and topical applications of nitrate of silver to trigone. Remarks: Probable sequence of events was prolapse, hyperemia, cystitis upon soil prepared for reception of germs.

CASE XVIII. Female, age 28. Well developed and strong. Symptoms: Duration four years. Indefinite though probable history of gonorrhea and peri-urethral abscess at that time; urinates eight to ten times a day, two or three times at night, pain after the act; tenesmus. Cystoscopy: Urethra intensely congested; also

vesical neck. Fistulous opening found 2 cm. in front of vesical neck on left. Diffuse redness of slight degree of whole bladder, especially about trigone. Urine: Albumin, slight trace; sediment, slight, chiefly pus, many medium, small round and squamous epithelium, a few blood corpuscles, a few granular casts. Result: Incised fistula and cauterized the track; boracic acid douches subsequently. Cured.

CASE XIX. Female, age 41. Well developed. Said to have had "polypi" at the entrance of bladder, removed a year ago. Doubtful history of gonorrhea a year ago. Symptoms: Duration, six months; worse lately; urinates every half-hour by day, four times at night, severe pain during and after. Cystoscopy: Thickening of urethra on right; urethra very red; full of pus which exudes from an opening on the right side; peri-urethral abscess; neck of bladder and trigone much injected; patches of redness on posterior wall 1 to 2 cm. in diameter; these patches are most frequent near trigone; no ulcers; eminences swollen and very red. Urine: Amount, 1,010; urea, 10.2; uric acid, .685; relation of uric acid to urea, 1 to 15; color, normal; phosphates, 1.81; chlorides, 6; sulphates, normal; specific gravity, 1.020; solids, 47.06; reaction, acid; indican, normal; sugar, absent; albumin, slight trace; sediment, slight, consisting of pus chiefly, some blood-few squamous and medium-sized epithelium; no tubercle bacilli. Result: Treated with potassium acetate, solid nitrate silver application, and occasionally salol. Cured in six months; seen four months later; no recurrence. Remarks: The peri-urethral abscess suggests gonorrheal infection.

CASE XX. Female, age 28. Robust and strong. Symptoms: General health good. Six months before being seen was delivered of a child. Through neglect on the part of her attending physician was said to have had complete urinary retention for four days. Then catheter was used; expulsion of whole mucous membrane of bladder followed (exfoliative cystitis). Since then frequent and painful micturition. Pain felt in urethra. Uneasy sensation constantly in bladder. Scaly crusts in vessels noticed by patient. Cystoscopy: Urethra and vesical neck scarlet red; whole bladder relatively normal. In the left hemisphere, just internal to the left ureteral orifice, a small area 3 cm. long and 2 cm. wide, covered with whitish gray deposit of phosphate of calcium. No "contact" ulcer on anterior wall; area surrounded by intense injection. Both ureteral orifices normal. Urine: Specific gravity, 1.018; no albumin; sediment, slight, consisting of few pus corpuscles, a few squamous epithelium and a few medium-sized epithelium; no tubercle bacilli; guinea-pig test negative. Result: Cured ulcer and applied pure nitrate of silver. Cured; seen one year later; no return of symptoms; bladder normal through cystoscopy.

#### CASES IN WHICH THE BLADDER AND UPPER URINARY PASSAGES ARE INFLAMED.

It is to be noted in the cases which follow, that ulcerations of the bladder wall are most marked and are most numerous about the ureteral orifice corresponding to the diseased kidney. This is of the greatest diagnostic importance.

CASE I. Female, age 51. Patient has never complained much of vesical symptoms. General health rather poor; some emaciation. Symptoms: Duration, one year; foul odor to urine; urinates six to eight times a day and four to five times a night. Now, frequency is much less; lately, and for the past few months, much hematuria, some backache. Cystoscopy: Whole bladder much injected, and presents a velvety appearance. No granulations, but whole wall appears to be a pyogenic membrane. Small yellow ulcers with shallow bases seen everywhere, 1 cm. in diameter; trigone particularly affected with ulcerations. The bladder wall trabeculated, and there are several saccules which have small openings  $\frac{1}{2}$  to 1 cm. in diameter and 1 cm. in depth, with smooth interiors

secreting white mucus and pus. Bladder so swollen and injected that no conclusions could be drawn as to relative size of eminences. Loculate bladder. Urine: Right ureter: pus chiefly; some blood; caudate epithelium; few squamous epithelia; few small round cells. Left ureter: slight sediment; consists of a few cells; urine clear. Bladder urine, chiefly pus and cells; reaction, alkaline. Result: Still under treatment. No improvement. Remarks: Probably primary infection in a loculate bladder with extension of inflammation to right kidney; a radiograph picture disclosed no stone in the kidney.

CASE II. Female, age 24. Rather poor general health. Panhysterectomy six months previously. Symptoms: Frequent painful micturition. History of passage of a renal calculus on the left side; hematuria once; duration of trouble, seven years; pain in region of left kidney. Cystoscopy: Urethra and vesical neck scarlet red; whole bladder wall streaked with red streaks, 1 to 2 cm. long and 1 to 2 mm. wide, likewise patches of the same nature here and there; left ureteral eminence much larger than normal. Trigone and left ureteral eminence covered with very small yellow punctate ulcerations 1 mm. in diameter; lymph follicles in bladder enlarged, and present themselves as whitish elevations like sago grains. Urine: Right ureter: urea, 1.13%; sediment, large, some pus, a few epithelia. Left ureter: urea .4%; much pus. Bladder urine: pyuria; guinea-pig tests in all three, negative as to tuberculosis. Result: Nephrectomy, left kidney; one large stone in the renal pelvis; several small ones imbedded in upper pole. Remarks: Cured. Bladder healed of itself without treatment in a few weeks. A radiograph taken two years after the nephrectomy showed a stone imbedded in the left ureter just below pelvic brim. No further symptoms.

CASE III. Female, age 22. Poor health for several years. Symptoms: Six years ago severe fall; vesical symptoms since then. Two attacks of severe renal colic; tubercular taint. Never had any renal symptoms of localizing nature. Frequent and painful micturition, pain during the act. Cystoscopy: Whole bladder, including vesical neck and trigone, greatly injected; left ureteral eminence not more changed than rest of the bladder. Right ureteral orifice found only by seeing pus exude; ulcerations all around the right ureteral orifice; eminence entirely gone and site occupied by an ulcer. Urine: Right ureter: urea, .63%; pale; acid; albumin trace; sediment, large, consisting of much pus, some epithelium, and a few casts; no tubercle bacilli found. Left ureter: urea, 2.4%; urine negative; guinea-pig tests negative as to tuberculosis. Bladder urine, pyuria. Result: Nephrectomy, right kidney; extensive pyelonephritis, due to stricture of ureter low down; ureter much dilated and wall thickened; kidney disorganized. Cured. Remarks: Heard from three years later; well; no further trouble. Bladder treated with antiseptics for several weeks after operation.

CASE IV. Female, age 40. Thin, spare woman. Considerable loss of strength and flesh. Very nervous but self-controlled; very intelligent. Symptoms: Twenty-two years ago strained herself by lifting; felt something "snap" in left lumbar region. Ever since then has had pain in left loin. Urination is frequent. Left kidney felt on palpation. Increased resistance of abdominal muscles on left side over kidney. Cystoscopy: No ulcerations. General redness of whole bladder, especially vesical neck and trigone. Right ureteral eminence not remarkable. Flow of urine on right side more abundant than on left. Wax-tipped bougies passed into each kidney; negative; no scratching as from stone. Left ureteral eminence larger than right one; flow of urine is slow; left eminence very red and streaky. Urines: Right ureter: urea, 1.38%; acid; slight sediment; few hyaline and granular casts of small diameter; epithelium. Left ureter: urea, .76%; sediment, slight, blood chiefly (trauma), some pus, a few large squamous epithelia, a few round cells, a few caudate epithelium, hyaline and granular casts; no tubercle bacilli. Result: Exploratory incision;

wound of renal vein (accidental); nephrectomy. Simple ureteritis in slightly movable kidney. Remarks: Patient is now having trouble with a buried ligature.

CASE V. Female, age 35. Thin, spare woman; nervous. Symptoms: Tubercular taint. General health poor. Bladder symptoms for eighteen years. Severe pain in right kidney, the first renal symptom at onset of trouble; no known cause; renal colic lasted for one week, during part of which time she was unconscious. Since then attacks of renal pain at intervals. Sensitive right kidney on pressure. Hematuria from time to time; bright red blood. Frequent micturition. Vesical calculus removed in 1891 by Dr. J. R. Chadwick. Large tumor in right loin. Cystoscopy: Whole bladder very red, but not granular looking. Two excavated ulcers seen near site of left ureteral orifice, each 1 cm. long and  $\frac{1}{2}$  cm. wide. Right ureteral eminence normal in all respects. Urines: Right ureter: catheter slipped out and urine not collected. Left ureter: sediment considerable, chiefly pus, some blood, a few granular casts, a few hyaline casts, some small round epithelium; no tubercle bacilli. Bladder urine: pyuria and various cells; guinea-pig test in case of bladder urine, negative; left ureter, negative; died in two days. Result: Has steadfastly refused any operative measures. Is now about the same as ever. Refuses to allow radiograph to be taken. Remarks: Probable calculus of the right kidney, and probably also of the left one as well. Note the peculiarity of right ureteral eminence; it is apparently normal, yet all the symptoms have been referred to right kidney, including evident sensitiveness on pressure over it; note also freedom from symptoms of left kidney, yet the left ureteral eminence shows ulcerative changes.

CASE VI. Female, age 38. Robust-looking woman. Symptoms: Rheumatism seven years ago, which left her with stiff knee-joint. Duration of disease six years; frequent micturition, later painful. Never any renal pain or localizing symptoms. Left ureter slightly enlarged *per vaginam*; muscles over left kidney slightly resistant. Cystoscopy: Urethra and whole bladder generally injected, especially in left hemisphere. Right ureteral eminence relatively normal and easily catheterized; left ureteral eminence covered and obliterated, apparently by cicatricial tissue; orifice not seen (catheterized subsequently). Around the left ureteral eminence are many small superficial ulcerations, 1 cm. in diameter, which bleed easily on being touched. In the middle of left hemisphere is a puckered area with a depressed centre, towards which the vesical tissue was drawn in radiating lines (old ulcer with contraction); numerous white scars are seen everywhere. Urines: Right ureter: urea, 1.26%; sediment not remarkable. Left ureter: urea, 0.63%; turbid; albumin, a large trace; sediment, considerable, consists of pus chiefly, some medium epithelium, some blood, many shreds, bacteria, no bacilli of tuberculosis; guinea-pig tests, in case of bladder and left ureteral urines, negative as to tuberculosis. Result: Cystotomy. Is very comfortable, and does not suffer at all; has had the fistula now four years. Steadfastly refuses all further operation. Remarks: Stricture of ureter located near ureteral orifice on left side. A gush of urine followed insertion of ureteral catheter. Undoubtedly a pyelonephritis with disorganized kidney. Probably of gonorrheal origin (?). Radiograph picture negative as to calculus. It is hoped the kidney will atrophy and permit closure of fistula.

CASE VII. Female, age 45. Very nervous, neurotic woman; spare habit. Symptoms: Twenty-five years ago gonorrhea; cystitis ever since. Frequent micturition; most suffering comes from "nagging" sensation in the bladder; sleep much disturbed; has very little rest. Occasional dull pain in right loin; somewhat tender right ureter vaginally. Cystoscopy: Bladder generally red, though injection is mild. Individual blood vessels are much larger than normal; a few ulcerations of small size scattered about. Trigone and vesical neck scarlet red. Right ureteral eminence much larger than the left. Stricture of right ureter located 8 cm. from vesical end of ureter; admits 2 $\frac{1}{2}$  mm. cath-



eter but not 3 mm. one. Urines: Right ureter (collected with cup-shaped cystoscope; no trauma of ureter): sediment, considerable, chiefly medium-sized epithelium free and in sheets, some blood, some pus, many hyaline and granular casts of large diameter. Left ureter: negative. Result: Vaginal cystotomy four years ago. Fistula open three and one-half years; urethra, vesical neck and bladder split from meatus to cervix uteri, closed at end of that period; is now just as badly off as ever, though does not have to urinate so often, stricture now being dilated. Remarks: It is hoped that with pelvic irrigations of kidney and dilatation patient will be cured.

CASE VIII. Female, age 42. Symptoms: Four months ago had "inflammation of the bladder" and had an attack of hematuria. Duration of disease up to now, three years; frequent and painful micturition; pain felt always on the left side of the bladder and is localized in one spot. Cystoscopy: Urethra and vesical neck much injected; likewise trigone. Ureteral eminence swollen and larger than left one. Urines: The right ureteral urine comes in frequent strong jets, while the left ureteral urine comes more slowly, less abundantly and in smaller jets. Right ureter (collected with cup-shaped cystoscope, no injury of ureter by trauma): negative. Left ureter: acid; sediment, slight, a few blood corpuscles, a few granular casts, many spindle epithelia, and a few medium-sized epithelia. Result: Still under treatment.

CASE IX. Female, age 40. Very nervous woman. Symptoms: Three years duration. Frequent micturition, but no pain. Intense vaginitis; non-specific. Cystoscopy: Trigone and vesical neck and urethra very red. Right ureteral eminence red and larger than the left one. Urines: Right ureter: acid; sediment, slight (collected with cup-shaped cystoscope, no trauma), some pus, some blood, a few epithelium, medium sized and caudate. Left ureter: negative. Result: Still under treatment.

CASE A.<sup>8</sup> Female, age 30. Symptoms: Instrumental delivery thirty years ago; at once cystitis; urine at first alkaline (for ten years). Twenty years ago passed a renal calculus, with hematuria. For thirty years, pain in the left kidney. For twenty years, urine acid; now passes at intervals large amounts of pus in urine as if from a large sac. Cystoscopy: Normal bladder, except for a deeply injected, red, puffy area about the right ureteral orifice. Urines: Right ureter: acid, negative, sterile. Left ureter: acid, much pus, considerable albumin, sterile. Result: Nephrectomy. Removal of calculus of carbonate and phosphate of magnesium and calcium. Remarks: The cystitis was evidently due to a micro-organism which finally died out.

CASE B. Female adult. Symptoms: Had cystitis for five years. Pain in left kidney for one year. Cystoscopy: Contracted bladder with ulcers. Urines: Right ureter: acid, negative, sterile. Left ureter: acid; considerable albumin; large amount of pus; bacillus coli communis. Result: Cured bladder; suprapubic incision and drainage. Left-sided nephrotomy and subsequently nephrectomy; pyelonephritis.

CASE C. Female, adult. Symptoms: Only symptom was passage of cloudy urine and slightly increased frequency of micturition. Cystoscopy: Bladder normal, with the exception of some injection of trigone, and about the left ureteral orifice. Urines: Right ureter: acid, negative, sterile. Left ureter: acid, and large amount albumin; pus in quantity; bacillus coli communis. Bladder urine: pyuria cells; bacillus coli communis. Result: Not stated.

CASE D. Female, adult. Symptoms: Instrumental labor; severe pain in right loin following this; dull pain in loin ever since; constipation. Cystoscopy: Reddening of trigone and puffiness of right ureteral orifice. Urines: Right ureter: alkaline, much pus, considerable albumin, epithelial cells; slowly liquefy-

ing staphylococcus albus. Left kidney: acid, negative, sterile. Result: Nephrotomy. Removal of calculus and drainage of right kidney (phosphate and carbonate of calcium and magnesium).

CASE E. Female, adult. Symptoms: Pyuria and pain for fifteen years; at first in left loin, then in right loin; four years ago left kidney removed and was found to be pyelonephritic and to contain a calculus. Since then, better, but has had constant pain in right loin; frequent and painful micturition. Cystoscopy: Injection about the left ureteral orifice. Urines: Left ureter: alkaline, many pus cells, considerable number red blood corpuscles; trace albumin; slowly liquefying staphylococcus, pyogenes albus. A few small calculi passed were found to be phosphates and carbonates calcium and magnesium. Result: Not stated.

CASE F. Female, young adult. Symptoms: Acute cystitis just after marriage; later, pain in right loin in renal region; some hematuria. Cystoscopy: Injected trigone, with a few small superficial ulcerations. Urines: Right ureter acid, small amount albumin. moderate amount pus, few epithelia; bacillus coli communis. Left ureter: negative, sterile. Result: Resection right kidney for multiple abscesses in cortex.

CASE G. Female, adult. Symptoms: Gout for many years. Two years ago pain in right loin, nausea and vomiting, chills and fever. Six months later a second attack, requiring morphia. Cystoscopy: Bladder normal. Urines: Right ureter: acid; considerable albumin; specific gravity, 1.004; bacillus coli communis. Left ureter: negative, sterile bladder; pyuria; bacillus coli communis. Result: Urotropin; water; soda; nephrotomy. Large abscess in right kidney; no calculus.

CASE H. Female, adult. Symptoms: Insidious onset; several attacks of renal colic several years ago; removal of stone from right kidney; pain in right loin; malaise; fever and nausea ever since then. Cystoscopy: Bladder normal. Urines: Right ureter: alkaline; considerable albumin; specific gravity, 1.003; many pus cells; bacillus proteus vulgaris. Left ureter: acid, negative, sterile. Result: Palliative treatment; hygiene; water; urotropin. Renal catheterization and irrigation of pelvis of kidney. Patient fairly comfortable.

## Clinical Department.

### SEVEN CASES OF PLACENTA PREVIA.

BY J. G. HENRY, M.D., WINCHESTON, MASS.

HAVING read with much interest the valuable article on placenta previa by Dr. Higgins, in a recent issue of your journal,<sup>1</sup> it occurs to me that a report of cases by those who have met with this unfortunate condition, and perhaps a further discussion of treatment, may be of some service to the profession.

I remember that while in college our teacher of obstetrics, the late Edward S. Dunster, in speaking of the rarity of placenta previa, said to the class: "The majority of you will never see a case," and yet, in an obstetric experience of something over fourteen hundred cases, I find that I have notes of seven. In my list there have been no maternal and but three fetal deaths, all of which were in premature labors.

CASE I. Consulted me about the middle of her fourth pregnancy on account of hemorrhage. She had had two or three attacks in a few weeks, quite severe. She was advised of the probable

<sup>8</sup> The lettered cases are from H. A. Kelly's Clinic, Baltimore. Reported by T. R. Brown, who did the bacteriological work. Johns Hopkins Hospital Reports, 1901, vol. x, Nos. 1 and 2.

<sup>1</sup> Jan. 2, 1902 p. 6.

cause and that it would most likely be necessary to bring on premature labor. After one or two more hemorrhages this was done by myself and an assistant. As she objected decidedly to taking ether, we dilated the uterus without an anesthetic. Found the placenta exactly over the os, went through it, turned and extracted the fetus without much difficulty, although the dilatation required more time than if an anesthetic had been used. There was severe hemorrhage during the operation, but not as much as we had expected to encounter.

**CASE II.** Seven months advanced in her second pregnancy. Was called in haste on account of a severe hemorrhage. She was having slight pains, the os about one-third dilated and soft, and the placenta presenting. Called another physician, who gave the ether and I easily dilated the uterus. Found a shoulder presentation, turned and delivered a dead baby. Convalescence was uneventful.

**CASE III.** Primipara, eight months pregnant. Was hurriedly summoned on account of a most alarming hemorrhage. There were no pains and the bleeding had nearly stopped before I arrived. The os was soft and the placenta could be felt presenting.

I advised the husband of the condition and urged immediate delivery as the only safe course. Arranged to operate the next day, as they wished to call their former family physician, who lived in an adjoining town. Met him by appointment the next afternoon, and although he agreed with me as to the diagnosis, much to my surprise he advised against interference, unless there should be further hemorrhage.

I explained my opinion to him and to the family, and refused to assume any responsibility in the case if left to itself. Was called a few days later and found the patient with a foul vaginal discharge and a thoroughly developed septic fever; temperature 103.5°. I again urged the necessity for immediate delivery, and this time gained the consent of the husband and patient. Under ether I dilated the uterus without difficulty, went through a rotten placenta, found a shoulder presentation, turned and extracted the fetus and cleared out the uterus as thoroughly as I could and washed it out with hydrogen peroxide. She ran quite a temperature for two weeks, but finally recovered.

**CASE IV.** A former patient came from another town to be under my care during her confinement. She was about eight months advanced in her fourth pregnancy, and had had two recent attacks of flowing. I explained to her the probable cause of the hemorrhage, and that it would be safer to bring on labor at once, but it was finally decided to wait unless she had further trouble. Was called a few days later and found her flowing profusely. The hemorrhage commenced while she was on her feet, and, as she expressed it, the blood simply poured away from her.

The os was about one-third dilated, there were slight pains, and the hemorrhage was still alarming. After packing the vagina I called another physician, and under ether dilatation was completed, and we turned and delivered a living baby. There was quite a post-partum hemorrhage, which we controlled by hot water irrigation and compression of the uterus. About one-half of the placenta seemed to have separated before labor. Except that the mother was very anemic for some months, both did well.

The hemorrhage was very severe in this case, and I blamed myself for not interrupting the pregnancy before the last attack.

In the other three cases in my list only an edge of the placenta presented. Two of them had copious hemorrhage in the early stage of labor, which ceased as soon as dilatation was well under way. The first of these, a primipara, had such profuse flowing that the blood soaked through the mattress and formed quite a puddle on the floor. The bleeding had nearly stopped when I arrived. The second had a similar attack at the onset of labor. At the end of the first stage there was almost complete inertia, and I was obliged to finish the delivery with forceps. The last case, a primipara, had a hemorrhage a few nights before labor, commencing while she was asleep. The labor was normal. In each of these three cases the edge of the placenta could be felt through the os.

In regard to the best treatment, it seems to me that Dr. Higgins is right in advising against abdominal section, except when version or delivery by the vaginal canal cannot be readily done. In country practice, at least, we do not always have a surgeon at hand or the necessary assistants nor the proper surroundings for a laparotomy. I feel reasonably sure that I should have lost at least one of my cases if I had delayed operation long enough to get the necessary help to do Cæsarean section.

Fortunately, in the majority of cases, if anywhere near a complete previa exists, nature shows a danger signal during pregnancy in the form of repeated hemorrhages, but perhaps the most dangerous of all are those in which there is no warning till the onset of labor, when there ensues a hemorrhage so appalling that it may destroy two lives in a few moments. It is in such cases that the physician must act with quick judgment and skill, for there is no time to call a surgeon or prepare for a laparotomy, and the only thing to do is a quick version.

Recent statistics, if they prove anything, prove that the treatment by version gives excellent results. In a late edition of Jewett's "Obstetrics" is quoted a list of over one hundred cases treated by version with a mortality of but 4.5%. This accords very nearly with the best statistics quoted in Dr. Higgins' article.

While willing to agree with the advocates of Cæsarean section that there are selected cases in which laparotomy offers advantages over version, until they can bring forward much better statistics

than they have yet been able to offer, the profession at large will be very slow to abandon the tried treatment by version. In this connection I am impelled to quote from Martin Dooley's article on Christian Science: "If doctors opened fewer patients and more windows there would be fewer Christian Scientists."

### CÆSAREAN SECTION FOR PLACENTA PREVIA.

BY P. J. CONROY, M.D., EVERETT, MASS.

I WAS called on the night of Jan. 14, 1901, to see a Mrs. H., who was (as her husband stated to me at my office) having labor pains and bleeding profusely. On arriving at the house I found the woman in a very weak condition from the loss of blood. The mattress was soaked through, and there was about one pint of blood on the floor.

On examination, the os uteri admitted the finger-tip and the placenta was felt completely covering the orifice. After removing the clots I packed the vagina with cotton, raised the foot of the bed twelve inches, gave  $\frac{3}{16}$  gr. of strychnine under the skin, and sent for Dr. A. A. Jackson in consultation. The pulse at that time was 140, respiration 25 per minute and labored, and temperature 98°. The history taken at the time was as follows:

English, thirty-five years old, always enjoyed good health; had four children; natural confinements; no abortions.

On arrival of Dr. Jackson the tampon, which had soaked through, was removed and the vagina was packed more firmly. After discussing the case for some time, we concluded to perform the Cæsarean operation as the only means of saving the woman's life. After getting the consent of the patient and her husband, we cleaned the room as best we could under the circumstances. We then secured the assistance of Drs. Hall and Hanson and a nurse, and after giving another hyperdermic of strychnine and one of brandy, we began the operation at about 10 A.M. After preparing the patient in the usual manner, the abdomen and uterus were opened and the child removed. The child weighed about 8 lbs., apparently at full term. We did not succeed in resuscitating the child, who to all appearances had been dead some hours. The placenta was one-third on the left side and two-thirds on the right, covering the cervix. It was removed through the abdominal wound without any trouble.

The uterus was closed with a double row of Gardner's kangaroo tendon sutures and the abdomen with through and through sutures of silk-worm gut. The abdominal cavity was filled with a warm salt solution before closing. After the patient was put to bed she was given one quart of salt solution by the rectum and one pint under the skin. The salt solution by the rectum was continued every four hours for three days.

On the evening of the third day the patient began vomiting, her stomach would not retain

anything for five days, and we were obliged to rely wholly on rectal feeding. On the eighth day her stomach again began to retain food. At the end of five weeks the patient was about the house and gradually began to attend to her household duties.

### Medical Progress.

#### REPORT ON DERMATOLOGY.

BY JOHN T. ROWEN, M.D., BOSTON.

##### TROPICAL FRAMBESIA AND TINEA IMBRICATA.

PROFESSOR KOCH<sup>1</sup> contributes some interesting facts about these tropical affections, gathered during his travels in New Guinea, and the neighboring groups of islands of the South Sea. He speaks of the lack of good pictorial representations of these affections in the literature, and is able to contribute several valuable photographs.

With regard to *frambesia*, it is said to be very extensively found throughout the tropics, appearing in many parts of Africa, in the East and West Indies, in the Indian Archipelago and in China. It is somewhat doubtful, however, if the type is the same in all of these regions.

The *frambesia* seen in the South Seas is a contagious affection and can be inoculated from one person to another. One attack produces immunity. In places where it is endemic it is chiefly seen in children, as almost all people are attacked once. In certain places children are inoculated with it, in order that they may have it quickly and lightly, as was long ago the practice in the case of variola. Most of the children seen by Koch were between one and twelve years of age. The lesions are ulcers approximately circular in form, often grouped or confluent. They always project above the surface of the skin, and appear as luxuriant granulations lying upon the skin. The smallest lesions looked not unlike a variola pustule, with a marked umbilication in the centre. The larger lesions were always denuded of epidermis, exuded a serum and pus and were covered with moist crusts, which exposed, upon removal, the exuberant granulating mass. When situated near the anus or genitals, they resemble condylomata very closely, and are sometimes mistaken for the latter. In the same child the most varied stages of the individual nodules may be met with, including small nodules still covered with epidermis, and all stages of ulcerated nodules. The lesions are especially frequent about the mouth and genitals. The paper is illustrated by several good photographs. The nodules do not all appear at once, but from time to time, until the susceptibility of the patient for the disease has been overcome. The duration is from some months to a year. Infants or very young children frequently die of the disease. It is not known that Europeans are ever affected. Various micro-organisms have been described as causing the disease, but none have been substantiated.

<sup>1</sup> Arch. f. Derm. u. Syph., January, 1902.

*Tinea imbricata* also seems to find its chief habitat in the South Sea Islands, and to have spread out from there to China and the Straits Settlement. This is caused by a parasite similar to the trichophyton tonsurans, which grows in the rete, and like ringworm develops in the form of circles, but does not tend to heal in the centre, so that annular appearances are not produced. The epidermis exfoliates in small scales, which remain adherent by their peripheral part, and present somewhat the appearance of the tiles of a roof, whence the name imbricata. There is a considerable amount of pruritus. In the photographs large surfaces of the body are covered with the circular scaling lesions, which produce a most extraordinary appearance. One remarkable picture is that of a child showing the earliest manifestations, where the sternal region is the seat of an enormous circular lesion. The affection is very common in adults, and sometimes almost all the inhabitants of a village may be affected. In adults as a rule almost the whole body is affected, so that Koch believes that the affection makes its appearance at a very early age, spreads gradually over the whole body, and, as far as he can determine, never heals spontaneously. It appears to have no essential effect on the general health.

#### CONGENITAL ICHTHYOSIFORM ERYTHRODERMA.<sup>2</sup>

Attention was first directed to this form of disease by the case of a boy of six who came to the St. Louis Hospital in Paris in 1881. There was a generalized redness of the skin and an ichthyotic condition, but on account of the fancied hyperkeratosis about the follicular mouths, the case was looked upon as an example of pityriasis rubra pilaris. It was noticed in this case that there was a remarkable growth of the hair and nails. Brocq was induced to study this case on account of the many features not common in pityriasis rubra pilaris. The next case of this type observed, presented the additional feature of a bullous eruption, especially upon the feet. Certain cases presented by Thibierge under the name of fetal ichthyosis were next considered by Brocq to belong in this class. He considers that there are two grand varieties of this dermatosis, one primarily accompanied by the formation of bullæ, the other never presenting this feature. Brocq then reports six cases of this affection, and refers to other cases that probably belong to the same type, published under the name fetal ichthyosis, congenital exfoliation of the skin, universal congenital exfoliative erythrodermia, etc.

The affection, in the first place, seems to be always congenital, and persists, without marked affection of the general health, for many years. It may, however, become modified, in some respects, as time goes on, but no instance of recovery is known. The predominating objective symptom is a generalized redness of the skin, sometimes, however, not well marked. There

exists also a considerable papillary hypertrophy, which is especially marked about the neck and at the joints, and this symptom is joined to a generalized hyperkeratosis, which makes the patient at first sight appear as if affected with ichthyosis. It differs from the latter, however, in affecting the folds of the joints and exactly those portions of the skin that are either exempt or not markedly affected in ichthyosis. All the patients had an abundant seborrhea of the scalp, and to some extent of the face. An extraordinary symptom was the rapid growth of the hair and nails, which had to be cut two or three times as often as is necessary in health. In a certain number of cases the affection is complicated by bullous lesions of irregular form, not accompanied by pruritus. Thus, there seem to be two forms, one bullous, the other dry.

It may be positively claimed that this is an affection distinct from ichthyosis, pityriasis rubra pilaris, pityriasis rubra, and pemphigus foliaceus. Whether, however, it may be regarded as a mild form of what has been called ichthyosis fetalis is a matter for discussion. On looking over the cases of fetal ichthyosis that have been published it is seen that there is a wide variation between them. There exists a well-defined type, in which the infant when born is affected with a considerable thickening of the epidermis, with well-marked fissures, to which the child rapidly succumbs. This is the type which has been called diffuse, congenital keratoma, as well as ichthyosis fetalis, or intra-uterina.

There is another group of cases, very rare in occurrence, in which there is a lamellated exfoliation of the skin of the newborn, due perhaps to a persistence of the fetal epitrichial layer. This is probably the form described by Hebra as ichthyosis sebacea.

Brocq properly considers that the first of these two groups should be completely separated from ichthyosis vulgaris, and that diffuse, malignant, congenital keratoma is its proper name. The erythema present in his cases of erythroderma differentiates them sharply from all forms of ichthyosis. It would seem that these cases have sufficiently marked characteristics to warrant their separation from any of the hitherto described forms of fetal ichthyosis.

#### ADIPOSIS DOLOROSA AND WHITE AND BLUE EDEMA.<sup>3</sup>

Strübing of Greifswald contributes an interesting article on this subject, beginning with a review of the literature. In 1892 Dercum described under the name *adiposis dolorosa* a peculiar affection, which was soon followed by similar observations at the hands of Hale White, Spiller and Essner.

The affection occurs only in women, usually between the age of forty and sixty. It is first noticed that fatty protuberances, usually symmetrical, appear on the trunk and limbs. New tumors continually appear, and the patients at the same

<sup>2</sup> Brocq: Ann. de derm. u. de Syph., January, 1902.

<sup>3</sup> Arch. f. derm. u. Syph., February, 1902.

time acquire a general increase of fat, so that in well-developed cases they are enormously fat. Hands, feet and face have not been affected in any of the reported cases. Pain is a constant feature, beginning early, even before the appearance of the fat masses. This pain may be very severe, often burning and lancinating in character, sometimes paroxysmal. The fat masses are often extremely sensitive to the touch. Many patients cry aloud when they are touched. Chilliness is often complained of and sensitiveness to pain, warmth and cold is diminished on many parts of the body. The muscular strength is weak, many being scarcely able to walk. Many cases are complicated with bronchitis. Most cases progress steadily. Dercum saw two cases with fatal termination. On account of the thyroid gland being small, hardened, infiltrated and calcified in one case, and enlarged in the other, Dercum concludes that adiposis dolorosa may be called a disease of the thyroid. Nervous symptoms, attacks analogous to epileptic seizures, have been reported.

Strübing then reports a series of cases observed by him of late years, in which there was a *general* adiposis, accompanied by great pain. The skin was thick and could not be raised in folds. In other cases there was only a partial infiltration. It occurred most frequently on the lower extremities, especially the lower legs. The parts subjected to pressure from the clothing were as a rule unaffected. The face was not usually affected. It occurred almost exclusively in women, and especially about the climacteric, although it was observed in a few younger and older women. Every attempt to pinch up the more or less infiltrated skin was painful, sometimes excessively so. In some instances pain was experienced without the skin being touched. In some cases the skin of the arms and legs was reddened, or had a bluish tint. In some cases there were other vasomotor disturbances, such as urticaria factitia, erythema, etc. In many instances there were marked hysterical manifestations, in others they were completely wanting. Locomotion was affected only when it was caused by the tension and sensitiveness of the skin.

This affection has been entirely lost sight of in some countries. Charcot in France has described it under the name "*edème hysterique*," as it occurred especially in subjects who had a functional disturbance of the nervous system. It was really, however, Sydenham who first made mention of it as white edema. Charcot adds to this a form characterized by a lowered temperature locally and by a bluish violet color, "*l'edème bleu*." According to Strübing these differences of color and temperature are simply accidental vasomotor disturbances. The edema is by all described as hard, the skin leaving no pit after pressure with the finger.

Many causes have been suggested for this hysterical edema. Most writers are agreed as to its association with hysterical and nervous symptoms. In other cases rheumatism, trauma and exposure to cold have been invoked as causes. There is a

great variation in the amount of pain experienced. In a few subjects the sensitiveness to pressure in the infiltrations is practically wanting, and it is undoubtedly true that a nervous element is an important factor here. In general the degree of pain is proportionate to the intensity of the edema. A microscopical examination of a piece of skin excised from one of Strübing's cases, threw little light on the process. The fat layer was considerably thickened, and the fat cells appeared to be very large.

Strübing considers that Dercum's *adiposis dolorosa* belongs in the same category with Charcot's "*œdème blanc et bleu*" and the so-called hysterical edema. The title edema is not scientifically justifiable, while *adiposis dolorosa* rightly expresses the two essential features. In cases where the adiposis is excessive, the French writers resort to the term *elephantiasis*, "*œdème neuropathique éléphantiasique*," which is an equally objectionable term. They believe that this elephantiasis form of adiposis is also neuropathic and of the same etiology as, and a consequence of, the edema. The analogy to symmetrical lipomata is also pointed out, and the fact is also emphasized that these multiple lipomata may sometimes be painful.

The therapeutics of this disease are not very satisfactory. For the reason that the places exposed to pressure from garters or bands were not painful, it was thought that vigorous massage might give good results. It was found, however, that massage occasioned at first almost unbearable pain, which gradually became less. Warm baths seemed to have some favorable effect. Thyroid preparations proved absolutely useless. Lourier recommends compression with cotton bandages and strychnia internally. Treatment in any case must be greatly prolonged, and if the infiltrations have been lessened by the mechanical treatment there is still the danger of recurrences.

#### THE CAUSE OF TACHES BLEUES.<sup>4</sup>

It was in 1877 that Mourson showed that the *tâches bleues*, or *maculæ ceruleæ*, were caused by pediculi pubis, and soon afterward the fact was experimentally demonstrated by the production of these spots by inoculating the skin with crushed pediculi. It was conjectured that the blue spots might be a toxic erythema produced by the salivary gland secretion of the louse, which was introduced into the skin by the bite of the animal. Microscopical examination of the pediculi repeatedly gave an entirely negative result.

Leydig has found in the so-called fat bodies of different arthropods, crystals of an albuminous substance and Fabre crystals of pure white color. In the fat bodies of the pediculus pubis Oppenheim has now shown that there exists a green coloring matter, contained in the cells of these structures. This green coloring matter may be seen in places, in eighty out of a hundred instances, on the living louse, when taken from the skin. It is situated chiefly on the lateral aspect of the thorax and ab-

<sup>4</sup> Oppenheim: *Arch. f. Derm. u. Syph.*, July, 1901.

domen. It is further found that this green coloring matter is contained in cells, which belong to the "fat body," and constitute its peripheral or subcutaneous part. These cells had previously been described by Landois and Traber, who said that the green color was due to the fat that they contained. It can be demonstrated, by dissolving the fat in ether, that this is not so. The pigment may be seen lying in green granules within the cell. As it was found by its insolubility that this coloring matter does not belong to the fat coloring matters, which are common in insects, it was concluded that it must come from human blood, on which the insect lives, and which is present in considerable quantity in the stomach and intestine of the animal. It was found that a certain similarity existed between this green coloring matter and biliverdin, but in no sense an identity. It is assumed that the pediculus manufactures this green coloring matter from the hemoglobin of the human blood through a ferment probably which exists in the salivary glands. This ferment is introduced into the blood at the same time as the bite of the animal and causes the same change, that is, the production of this green pigment, in the exuded human blood as it does in the body of the louse. This pigment, then, is spread out in the cutis, and, seen through the partially opaque epidermis, has a steel-blue color. It was found that in the case of people who presented no *tâches bleues*, or very slight ones, about 25% of the pediculi exhibited the green coloring matter on the thorax and abdomen. When, however, the *tâches* are more numerous and brighter, all the mature pediculi contain the green pigment, sometimes in such quantity that parts of the animal appear a diffuse green. It was further found that 20% of the adult animals showed no trace of coloring matter, even when examined some time after being taken from the skin. This accords with the fact that some persons do not show any *tâches bleues*, although pediculi are present in abundance. Head and body lice are entirely free from coloring matter and *tâches bleues* are never seen in connection with these varieties.

#### RECENT EXPERIMENTATION WITH THE RÖNTGEN RAYS.

Über den Einfluss der Röntgenstrahlen auf die Haut in gesundem und Krankem Zustande. Scholtz<sup>5</sup> contributes from the dermatological clinic in Breslau, an elaborate article which embodies the results of the experimental work with the x-rays done in Breslau during the last few years. He remarks at the beginning that in spite of the therapeutic application of this method, there is still no unanimity of opinion as to the indications for this treatment and as to the technique, nor is it known what the active agent is which causes the changes in the skin and the healing of various dermatoses. His work is divided into three parts: (1) Experimental investigations to determine what the active agent is; (2) histologi-

<sup>5</sup> Arch. f. Derm. u. Syph., Bd. lxx, H. 1, 2, 3.

cal investigations to determine what tissues are primarily affected, what the histology of the x-ray changes in the skin is, and how the cure of skin affections is accomplished; (3) clinical observations to determine the indications for the therapeutic use. In order to throw some light on the first point, animal experimentation was resorted to, young pigs being used chiefly, as their skin is in every particular remarkably like human skin, and as the changes that occur under the influence of the Röntgen rays, such as alopecia and ulceration correspond with those in man, not only in their form and course, but also in the time of their appearance. From these experiments it is concluded that the more Röntgen rays there are projected from a Röntgen tube, the stronger is their effect upon the skin. It is therefore preferable to use soft tubes for therapeutic purposes. It was also found that the fewer Röntgen rays a material allows to pass, in so much greater degree are the rays that are active as regards the skin, kept back. All the experiments clearly show that the active agent resides in the Röntgen rays themselves. It was next sought to solve the question as to whether the rays are only active at the place where they enter, or whether their influence is felt everywhere in the tissues that they penetrate. From experiments on the ears of rabbits it was concluded that the Röntgen rays produce their effect first on the skin, while deeper structures are but little influenced, and become necrotic perhaps only secondarily, in consequence of the extreme inflammation. Also that the rays produce their effect, not only at the point of entrance, but that by penetrating thin layers of cartilage and muscle, they may affect the skin at their point of exit. Experiments also showed that the rays were able to produce very little, if any, effect on the internal organs, abdominal organs, brain, eye, etc. This accords also with the clinical experience, as in cases of mycosis fungoides the rays have been used upon the abdomen up to the point of producing necrosis of the skin, without any effect on the internal organs, and the same is true after long-continued exposure of the whole body in psoriasis. The eye even has been treated without ill effect.

Experiments on pigs also showed that the time of appearance of the first macroscopical changes is somewhat later with weak than with strong exposures, but even with the strongest exposures is from seven to eight days. The acme is not reached until the end of several weeks. The bactericidal property that has been claimed for the Röntgen rays by Rieder is not borne out by the writer's experiments with cultures of typhoid, cholera and tricophyton organisms, and in his opinion cannot be said to play a part in the therapeutic effect.

The second part of Scholtz's article is devoted to a consideration of the histological changes. He experimented on the skin of young pigs, on human skin, and on lesions that had been treated by the rays. His conclusions are that the Röntgen rays affect especially the cellular elements of the



skin, which become slowly degenerated, while connective tissue, elastic tissue, muscle and cartilage are affected either not at all or to a slight extent and only secondarily—in consequence of the degeneration of the cells and of the reactionary inflammation. The degeneration is especially marked in the epithelial cells, to a less degree in the cells of the glandular organs, vessels, muscles and connective tissue, and affects both the nuclei and protoplasm. As soon as this degeneration has reached a certain point, a reactionary inflammation results, which is seen in the great dilatation of the vessels, serous infiltration of the tissue, appearance of leucocytes at the periphery, and emigration of white corpuscles. When a high grade of cell degeneration is reached there is a profuse infiltration of leucocytes into the cellular mass which results in its complete destruction. The changes in the smaller and larger vessels are probably of great importance in the further development and slow healing of the ulcerations. Histological examination was also made of bits of lupus tissue that had been treated, and it was found that the same phenomena appeared as in the normal skin—a degeneration of the cell elements, especially of the epithelioid and giant cells of the lupus nodule, which is followed by an inflammatory reaction.

In the last and clinical part of the article the writer expresses his opinion that idiosyncrasy plays a small part in the susceptibility of the normal skin to the Röntgen rays, but that it may have some influence, and that different parts of the body may react quite differently. He has thought that the parts covered with hair are more likely to develop a dermatitis and ulceration, and asserts that unhealthy skin reacts more quickly and intensely than normal.

**Lupus Vulgaris.**—Fifty-five cases of this disease were treated during three years. The conclusion is reached that this method often has a decided superiority over the old methods, and appears to conduce more to permanent healing. This is especially true of lupus of the nose and lip, in which the mucous membranes are involved. Other advantages are the good cosmetic results and the painlessness. Disadvantages are the long duration of the treatment and the difficulty of carrying it out. It is believed that exposures causing inflammatory reaction, and even to some extent necrosis in the diseased parts, should be used in a certain number of the cases—not in all. The best results, comparatively, were in the cases of severe lupus, which were not adapted to the usual methods of treatment, and in which the Röntgen ray exposures were energetically carried out. Lupus erythematosus (five cases) was benefited by energetic treatment carried to the point of necrosis; recurrences, however, were noted. In favus, trichophytosis, sycosis and folliculitis of the hairy portions, the chief factor was the complete and perfect epilation produced. In sycosis and folliculitis barbæ the rays seem to exert a favorable influence on the tissue, and some observers have seen a sinking down of the

nodules and papules before the hair fell out. In all these cases the method was so used that the hair fell without essential signs of inflammation after about two weeks. In favus (twelve cases) no definite cure was produced by this method alone. In sycosis and folliculitis barbæ (thirty-seven cases) definite healing was produced in light cases; in more obstinate cases recurrences were noted. Here, too, a prolonged after-treatment is necessary, or the Röntgen ray treatment must be repeated. Acne vulgaris and acne rosacea (nine cases) were improved, but not to such a degree as to put this treatment before the usual methods. Eczema (eight cases) was frequently very favorably impressed (the variety is not stated). Itching, oozing and scaling were diminished.

The results in psoriasis are considered as very interesting. Twenty-six cases were treated. Weak exposures at pretty long distances were used. At first the treatment was repeated every day; later, every second or third day. In all cases the affection was much influenced; in most the lesions were entirely removed. Improvement began after three or four sittings. It is recommended, however, to hurry the cure later on by the addition of other methods. Nothing definite can be said as to recurrences. In one case such a recurrence occurred during the use of the method.

An improvement in a severe case of pruritus vulvæ is noted. The method proved useless in two cases of leprosy. The so-called premycotic lesions in two cases of mycosis fungoides were made to disappear. In hypertrichosis (four cases) the belief is expressed that by intermittent treatment the hair may be permanently destroyed.

Codman<sup>6</sup> contributes a most valuable and interesting article on the occurrence of dermatitis from the Röntgen rays. He has been able to collect less than 200 cases, from which he concludes that only one case in 5,000 has been injured and less than half of these seriously. In 20,000 cases in the Boston hospitals there has been no dermatitis in patients and but four in skiagraphers. Codman concludes that the frequency of dermatitis from the Röntgen rays has been much exaggerated, and that of the cases of injury more than two-thirds occurred in the first two years of the use of this method. He considers that the cause of the injury, although not definitely known, is some form of energy closely allied to the photographically active x-ray, and that the primary injury is to the nerves that control the nutrition of the skin, there being no good evidence that deeper structures are affected unless there are primary lesions of the skin. Idiosyncrasy he considers plays an important part. He agrees that hard tubes produce a less intense effect on the tissues than soft. Ten minutes exposure at six inches from the platinum terminal is suggested by the writer as a standard therapeutic exposure. The dermatitis does not appear after three weeks from the last exposure;

<sup>6</sup> Study of the cases of accidental x-ray burns hitherto recorded. Philadelphia Medical Journal, March 8, 1902, E. A. Codman, M.D.

in one-third of the cases the dermatitis appeared within the first four days; in one-half before the ninth day.

Pusey<sup>1</sup> considers that two of the properties of the x-rays, namely, their power of causing atrophy of the cutaneous follicles and of checking pus formation, furnish good grounds for their use in cases of acne. He details the result of the treatment of eleven consecutive cases by this method. All of these cases were exposed to a very weak light, using a rather soft tube. The treatment was stopped at the first sign of pigmentation or erythema, and in no case did improvement fail to appear simultaneously with these appearances. The result in all of the cases was so direct and constant that there could be no question that it was due to the effect of the rays. In every case that has been under treatment for a sufficient time, Pusey has been able to see a beneficial effect. In these experiments all other treatment was avoided. The number of sittings varied from 18 to 41.

### Recent Literature.

*Principles of Sanitary Science and the Public Health.* With Special Reference to the Causation and Prevention of Infectious Diseases. By WM. T. SEDGWICK, Ph.D. New York: The Macmillan Co. 1902.

This excellent volume might well be entitled the "Gospel of Cleanliness." Professor Sedgwick has here brought together, as he states, "in a simple and logical form, those fundamental scientific principles on which the great practical arts of modern sanitation securely rest." The modern theory of infectious diseases is fully and clearly set forth, together with the early theories which were prevalent upon the same subject. The author explains the rôle which filth plays in the etiology of infection, wherein he agrees substantially with the views presented in Dr. Chapin's recent article entitled "The End of the Filth Theory."

In the chapter on Water as a Vehicle of Infectious Disease are brought together many illustrative examples, beginning with the celebrated Broad Street well epidemic of 1854 in London, and giving also an account of the Merrimac River epidemics, which the author had himself so thoroughly investigated in 1891.

An appendix is added, containing a statement of many of the popular beliefs and fallacies relative to the causation of disease.

The author's easy style as a lecturer and writer, together with a wide experience in the investigation of the causes of disease, have combined to make this an exceedingly readable as well as useful volume.

<sup>1</sup> Acne and sycosis treated by exposures to the Röntgen rays. *Journal Cutaneous and Genito-Urinary Diseases*, May, 1902.

## THE BOSTON Medical and Surgical Journal.

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### TETANUS AND VACCINATION.

The subject of "Tetanus and Vaccination," which has been agitating both the lay and professional mind, has undergone an authoritative investigation at the hands of Prof. Joseph McFarland of Philadelphia. The results of this investigation were presented at the recent meeting of the American Association of Pathologists and Bacteriologists and have since been published in the May number of the *Journal of Medical Research* and in the June number of *Medicine*. Dr. McFarland's paper is worthy of the closest attention, for it is only through such painstaking studies that any definite conclusions may be reached with reference to popular impressions. He takes the philosophical position that if tetanus is a necessary complication of vaccination we should be prepared for it; if it is an avoidable complication we should use the utmost care in the choice of our virus and in the method of inoculation.

A search through the literature makes it clear that tetanus has not in the past been regarded as a recognized complication of vaccination. Only fifteen cases were found in medical publications, and these occurred at somewhat remote periods in different parts of the country and were all attributed to secondary infection. In addition to these fifteen cases eighty others of varying degrees of authenticity have been gathered from sundry sources. Of these there were sixty-one undoubted fatalities, most of them occurring in childhood. It is a very striking fact that forty-five of these cases, covering in all a period of sixty-three years, occurred in 1901.

The relation of tetanus to vaccination has been variously explained. One popular belief among physicians has been that tetanus is an accidental secondary infection of the vaccination sore, a point of view which cannot be absolutely gained, but which is unlikely for various reasons.

Why, for example, should such an infection not occur with more or less regularity in all parts of the world? It appears that the complication is unknown in France, and that no cases appear to have occurred in Russia, Italy or Austria. On the other hand, many cases have occurred in America, and particularly in one year. Another explanation has been that the complication depends upon the local presence of the tetanus bacilli. Such an explanation, as applied to the recent outbreak in Camden, New Jersey, is inadequate, since the cases occurred only in relation to vaccination, and were not otherwise more frequent than usual. Cases have also occurred in many other places than Camden, being reported from seventeen States, as well as from countries beyond the borders of the United States. Thirdly, it has been urged that carelessness in the treatment of the vaccination wound is the source of the infection. This again seems unlikely, since there is reason to suppose that much greater care is exercised at present than in pre-antiseptic days, when the complication was practically unknown. On this point Dr. McFarland's words are:

It is but now becoming recognized that vaccination is an operation, and that to free it from the common dangers of all operative manipulations, cleanliness and care are essential. We therefore find the skin cleansed and disinfected, and the lesion protected and dressed with a care never dreamed of a few years ago, yet when we come to examine the details of those cases which have come within our knowledge, we find that this care of the wound appears to be without influence upon the development of tetanus, for while many cases have occurred among ignorant and filthy children, in an equally great number of cases not only ordinary but extraordinary care seems to have been exercised. Thus one case occurred in the person of an adult sister of a physician in Cleveland, Ohio. Both the patient and the operator were refined and cultured people, were apprehensive of the results, and exerted unusual precautions, yet despite all, death from tetanus followed this vaccination.

The densely ignorant and filthy people of the island of Porto Rico, with no knowledge of hygiene or personal care of themselves, living in a place reputed to be extremely dangerous because of tetanus, were vaccinated by the United States authorities after the occupation of that territory, and out of some eight hundred and sixty thousand vaccinations three cases of tetanus, two of which are very doubtful, occurred.

Finally, the use of shields to protect the vaccination sore, however undesirable they may be for other reasons, apparently bears no relation to the occurrence of tetanus. The use of bovine instead of human virus also cannot be blamed, as a study of the statistics shows.

In the search for the cause of tetanus this brings us to a consideration of the vaccine virus itself. It appears, on investigation, that while an occasional case of tetanus has followed the use of virus made by nearly all the large manufacturers, the great majority of cases have followed the use

of a particular virus, suggesting that in this virus the germs of tetanus were present in larger proportion than in others, though still small in number when one considers the great amount of the virus used. The statistics further show that the trouble does not lie with the glycerinized virus as against the dry points, but as just stated, with the virus of one manufacturer.

The following general conclusions are drawn:

- (1) Tetanus is not a frequent complication of vaccination, a total of ninety-five cases having been collected.
- (2) The number of cases observed in 1901 was out of all proportion to what has been observed heretofore.
- (3) The cases are chiefly American and occur scattered throughout the eastern United States and Canada.
- (4) They have nothing to do with atmospheric, telluric or seasonal conditions.
- (5) They occur in small numbers after the use of various viruses.
- (6) An overwhelming proportion occurred after use of a particular virus.
- (7) The tetanus organism may be present in the virus in small numbers, being derived from manure and hay.
- (8) Occasionally, through carelessness or accident, the number of bacilli becomes greater than usual.
- (9) The future avoidance of the complication is to be sought for in greater care in the preparation of the vaccine virus.

#### CONTAGIOUS OPHTHALMIA AND ITS DANGERS.

At a meeting of the New York Academy of Medicine held June 5, contagious ophthalmia and its dangers were discussed. The first paper was by Dr. Richard H. Derby on "Contagious Ophthalmia in Industrial, Residential and Public Schools and in Asylums and Hospitals." He first referred to the work of the Academy's committee, appointed in 1886, in securing the passage of laws which provide for the examination by competent physicians of the eyes of destitute children for whom admission to public institutions is sought and also for the prosecution of midwives or nurses for failure to report redness or inflammation of the eyes of infants in their charge within six hours of its appearance. He then detailed some of the good results accomplished by this action. Thus, in 1888 17% of the children in the New York Juvenile Asylum were suffering from ophthalmia, while in 1902 the percentage was but 2.5. At the Five Points House of Industry the percentage had been lowered from 66.5 to 4.4, and that at the House of Refuge from 16.2 to 7%. The special object of this paper was to direct attention to the prevalence of the disease at the present time in the public schools of the city. With the aid of several competent assistants Dr. Derby has recently made an examination of a considerable number of the pupils. In School No. 1, in Henry street, two hundred and one cases of con-

municable eye-disease were found, being 19.2% of those examined. Of these two hundred and one cases, one hundred and thirty were pure trachoma and seventy-one incipient trachoma and conjunctivitis. Of the trachoma cases, sixty-six were of the most severe type. In School No. 75, in Norfolk street, one hundred and fourteen cases of communicable eye-disease, or 15.5%, were found. Dr. C. Cole Bradley, who was one of those making the examinations, reported to Dr. Derby that in School No. 1, which is equipped with shower baths, the number of cases was noticeably less in the classes where such baths were frequently used. The practice of having the children bring their own towels, which are frequently nothing but old rags, appeared to him to be decidedly dangerous. In School No. 75 the system of double and quadruple desks was objectionable, owing to the proximity of the children and their tendency to use pens, pencils and rulers in common. In concluding his report he said: "It appears to me that the remedy for such conditions is simple. If the Health Board would treat the public schools as it does the public institutions for children, insisting on a monthly eversion of lids by the medical inspector, the work of such inspector being verified occasionally by an ophthalmologist, the conditions would be very greatly improved." Dr. Derby highly commended the activity of the Health Department in endeavoring in an intelligent manner to stamp out the disease, and in conclusion urged the establishment of a special hospital for this class of patients on account of the intensely infectious character of the affection. Dr. Carl Koller read a paper on "Modern Methods Employed in the Treatment of Trachoma and Other Forms of Contagious Ophthalmia," and a general discussion followed. Dr. Frank Van Fleet said that there was a much smaller number of blind persons in the State now than formerly, owing to the passage of the laws referred to by Dr. Derby, as well as to better knowledge on the part of the people and their physicians. He then called attention to the great danger of the public baths. This matter was also taken up by several other speakers, who recommended that the towels should be disinfected, and that an examination of all persons making applications for baths should be made by physicians stationed at the bathhouses. As soon as the prevalence of contagious ophthalmia in the public schools was called to the attention of the Board of Health by Dr. Derby, in his capacity as advising ophthalmologist to the board, measures were set on foot for the control of the disease, and at a meeting of the board, held June 4, it was ordered that henceforth physicians must report all cases of the disease met with in their practice.

#### MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

THE annual meeting of the Massachusetts Medical Society was held in Boston on Tuesday and Wednesday of this week. The new Medical Library Building was brought into requisition and many of the meetings were held there instead of in the less inviting rooms hitherto used at Mechanics Building. Of the many uses to which the Medical Library may be put, this is certainly one of the most fitting.

The programme was chosen with care, with the result that a series of papers on general subjects, and on various aspects of those subjects, were presented, which should remain long in the minds of those who heard them. Smallpox, head injuries and alcohol were the main topics discussed, and the society was fortunate in having representative men present from beyond the confines of Massachusetts to take part in the various discussions. Dr. Frank Billings, of Chicago, in the Shattuck Lecture, spoke on "The Changes in the Spinal Cord and Medulla in Pernicious Anemia," a subject which has of late been exciting a very marked degree of interest among both clinicians and pathologists.

This meeting, like its many predecessors, must be regarded as a memorable one, in which the social and the intellectual element have again been happily combined.

#### MEDICAL NOTES.

**A MEDICAL PREMIER OF FRANCE.**—The new Premier of France, Justin Louis Emil Combes, is sixty-seven years old, a doctor of medicine, a doctor of letters, a former schoolmaster and a frequent contributor to literature. He is said to be the shortest man in stature, who has held high office under the Third Republic, with the single exception of M. Thiers.

**SURGEON-GENERAL WILLIAM M. FORWOOD.**—Col. William M. Forwood has been appointed surgeon-general, to succeed Brig.-Gen. George M. Sternberg, who has within a few days been placed on the retired list.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, June 11, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 41, scarlatina 25, measles 90, typhoid fever 12, smallpox 18.

**COMMITTEE ON HARVARD MEDICAL BUILDINGS.**—The President and Fellows of Harvard University appointed the following members of the

Faculty of Medicine as an advisory committee on the location and construction of the buildings of the Medical School: Dr. J. Collins Warren, chairman; Drs. W. L. Richardson, H. P. Bowditch, E. H. Smith, W. F. Whitney, F. C. Shattuck, C. S. Minot, H. L. Burrell, H. C. Ernst, Charles Harrington, F. Pfaff, Theobald Smith, Franklin Dexter and F. B. Mallory. Dr. Farrar Cobb will act as secretary.

**CIRCULAR REGARDING THE CAUSE AND PREVENTION OF MALARIA.**—The Brookline Board of Health has issued a circular of information in regard to the cause and prevention of malarial fever, which it has sent to every family in the town. The object of the circular is to inform the people as to the danger arising from the bites of mosquitoes, where mosquitoes breed and how they may best be exterminated.

**REQUESTS BY DR. JOHN HOMANS, 2D.**—In his will the late Dr. John Homans, 2d, has left \$1,000 to the Massachusetts Cremation Society and \$2,500 to the Boston Asylum and Farm School for Indigent Boys. With both of these institutions Dr. Homans had been officially connected. Dr. Homans requested that his body should be cremated.

**OFFICERS OF THE MASSACHUSETTS MEDICAL SOCIETY.**—At the meeting of the Councillors of the Massachusetts Medical Society, June 10, Dr. George E. Francis of Worcester was elected president, and Dr. S. W. Hayes of New Bedford vice-president of the society.

**LODGING-HOUSE REGULATIONS.**—The Boston Board of Health has issued a new set of regulations for proprietors of the cheap lodging-houses licensed by the Board of Police. The requirements relate to improved sanitation.

#### NEW YORK.

**MORTALITY STATISTICS.**—The mortality in the city reported in the month of May represents an annual death-rate of 18.91, against 19.83 for the month of April and 18.13 for May, 1901. The corrected death-rate for the month (excluding non-residents and infants under one week old) is 17.95. Among the diseases which showed an increased mortality were the following: The weekly average of deaths from scarlet fever increased from 25.5 in April to 33.25 in May; the weekly average from whooping cough, from 12.75 to 13.75; from typhoid fever, 6.5 to 8.25; from pneumonia, 146.5 to 148.5; from cancer, 48.5 to 57; from diarrheal diseases, 37.75 to 44.5; and from diarrheal diseases in children under five years, 31.25 to 37. Among the diseases which showed a decline in mortality were the following: The weekly average of deaths from diphtheria

and croup decreased from 45 to 43.25; from measles, 22 to 15.75; from smallpox, 13.25 to 7.25; from phthisis, 158.5 to 149.25; from bronchitis, 44.75 to 38.25; from influenza, 4.25 to 1; and from diseases of the urinary system, 122 to 110.25. During the week ending May 10 not a death was reported from influenza, and the same was true of the week ending May 31.

**CARE OF MOTHERLESS INFANTS.**—The fourth annual report of the joint committee on the Care of Motherless Infants, composed of members of the State Charities Aid Association and the New York Association for Improving the Condition of the Poor, has just been issued. The committee, which was organized for the purpose of saving the lives of foundlings, selects with great care the homes in which the children are placed, and its work has shown very satisfactory results. In the first year of its existence the mortality among the infants cared for was 55.9%; in the second year, 31.1%; in the third year, 18.9%; and in the fiscal year now ended, 10.7%; this last mortality-rate being lower than that among all children under two years of age in the borough of Manhattan. The fact must be taken into consideration, however, that the total number of infants under the care of the committee is comparatively small. In this connection the statistics of the Infants' Hospital on Randall's Island are of interest. In 1897 1,181 children under two years were cared for and 524 died, a percentage of 44.36. In 1898 Mr. Nathan Strauss prevailed upon the Department of Public Charities to allow him to establish a thoroughly equipped Pasteurizing plant at the institution. In that year 1,284 infants were treated, and 255 died, a percentage of only 19.80. In 1899, of 1,097 treated, 269 died, a percentage of 24.52, and in 1900, of 1,084 treated, 300 died, a percentage of 27.68. In these two years there was epidemics of measles in the hospital, which increased the mortality to a very considerable extent. In 1901, 1,028 children were treated, with 186 deaths, a percentage of 18.09.

**LAND FOR COLUMBIA UNIVERSITY.**—The New York Hospital has accepted the offer made by a number of the friends of Columbia University to purchase the two blocks of land just south of the university grounds. The price to be paid is \$1,900,000, partly in cash and partly by mortgage. The title will pass on Oct. 1, and it is the intention of the subscribers to give the university an option to purchase the property at cost within a year from that date, their purpose being to secure more ample space for the future educational development of the institution. This property is a portion of the land formerly occupied by the New York Hospital's department for the insane

(Bloomingdale), which is now located at White Plains, the remaining portion being the four blocks purchased and occupied by Columbia.

**CORNELL UNIVERSITY MEDICAL COLLEGE.**—The fourth annual commencement of Cornell University Medical College was held at Carnegie Hall on June 4, when the address to the graduates was made by Dr. T. Gaillard Thomas. The class numbered fifty-three, of whom nine were women. This was the first occasion when students who had taken the full four years' course at the Cornell School had been graduated.

**RESEARCH FELLOWSHIP IN PHYSIOLOGICAL CHEMISTRY.**—Alfred N. Richards, assistant in the department of physiological chemistry at the Columbia University Medical School (College of Physicians and Surgeons), has been appointed to a research fellowship in the Rockefeller Institute, in acknowledgment of recent original scientific work done by him.

**NEW YORK UNIVERSITY.**—At the commencement of the New York University, which was held at the Metropolitan Opera House on June 5, there were forty-six graduates from the University and Bellevue Hospital Medical College and six from the Veterinary College.

### Miscellany.

#### RESOLUTIONS ADOPTED BY THE AMERICAN CONGRESS OF TUBERCULOSIS, SESSION OF 1902.

THE following resolutions were adopted at the recent session of the American Congress of Tuberculosis:

(1.) Proposed by Dr. W. Oldright, delegate for the government of Ontario to the congress:

*That, Whereas, in the lists of deaths from tuberculosis, classified according to occupations, published in the statistical reports of the United States and Canada, female schoolteachers hold a very prominent position, this congress would draw attention to the fact that the average amount of air space in schools is less than half that recommended by sanitarians all over the world, and would further urge upon the authorities their bounden duty of providing more accommodation and better ventilation.*

(2.) Resolutions submitted by the Committee on Resolutions:

*Whereas, Tuberculosis is an infectious disease, ordinarily communicated from person to person by means of the dried sputum of a consumptive patient, and*

*Whereas, The spread of tuberculosis could be largely controlled by the proper care of such sputum and the enforcement of comparatively simple measures, therefore be it*

*Resolved, By the American Congress of Tuberculosis that the health authorities be urged to disseminate to the widest extent possible, through the public press and otherwise, correct information as to the manner in which this disease is produced, and the means employed for its prevention.*

*Resolved, That we believe it to be the duty of the national, state and municipal governments to enact*

*rational methods for the prevention of tuberculosis, and we recommend the establishment of institutions for the care of indigent consumptives.*

*Resolved, That there should be state and municipal supervision of all public conveyances used for the transportation of passengers; and in view of the fact that spitting on the floors of public conveyances favors the spread of tuberculosis and is injurious to the public health, it is recommended that transportation companies be induced to pass and enforce rules against this act.*

*Resolved, That appropriations should be requested from state and municipal governments for the publication and distribution of literature as a means of education in the prevention of the spread of tuberculosis.*

*Resolved, That all cases of tuberculosis should be reported by the attending physician to the health boards for the purpose of disinfection of houses occupied by consumptives.*

#### PRESENTATION OF A LOVING CUP TO PROF. T. M. ROTCH, M.D.

At the close of the last annual meeting of the American Pediatric Society, May 28, a loving cup was presented to Dr. T. M. Rotch. The presentation was accompanied by the following graceful remarks by Dr. Leroy M. Yale of New York:

I have been asked to say a few words in behalf of those members of the society who have come from other cities. I am sure that they will first wish me to try to express to you how much they enjoyed their visit to Boston. Those of us who have been here before of course knew what a pleasure was before them. For myself, I always like to come to Boston, for I acquired the Boston habit very early in life. This was the first considerable city I ever saw, and I have never since seen one so splendid as it then seemed to my country-bred eyes.

But it was quite another Boston, small in area but high in spirit. Think of it—"The Autocrat" and "Hiawatha" had not yet charmed it. Its blood had not yet boiled at the extradition of Burns. The hero whose splendid memorial graces the Common was still a schoolboy. Even now I like to orientate myself by beginning at Boston Stone, at Copp's Hill or the Old North Church, before I wander out to the Public Garden, where the little waves beating upon its rip-rap edges seemed there to end the town, just where a new city—a new world almost—now begins.

What impresses a visitor from another city is that all this change and increase is not mere expansion, but growth. Many towns seem to spread indiscriminately, like a neoplasm, but Boston has developed structurally. With a foresight unexampled, so far as I know, in this country, its growth has been planned for in such a way that it may go on increasing normally, healthfully and beautifully for generations. I have thought that the original restricted domain of Boston has proved to be an advantage. It promoted unity of action, and when the town felt the need of more land it put it just where it wanted it, instead of taking any ready-made adjacency.



But with all this splendid material growth, I find some things unchanged. Boston still thinks as of old. Still she responds as quickly as ever to the touch of an idea; still is the spirit of light and leading in her; still we feel *ex oriente lux*; still is her hospitality as rich as ever. I felt it when the driver of the Charlestown "Hourly" picked me up—an eight-year-old boy, who had bankrupted himself at Martin L. Bradford's tackle shop beside the Old South Church; took my pole on top of the bus and gave me a free ride on the footboard behind. I felt it when the men who were then giving Boston her medical name treated me, a young graduate, as if I were "somebody in particular." Never has it been more evident than now, when you have not only shown us hospitality, but have given us a lesson in the art of showing it. So gracefully have you done it that we have taken with pleasure an amount of attention which, when we read it in the program, seemed appalling.

Dr. Rotch, we desire to offer you this loving cup as a token of our regard. We offer it to you not only as our host; I should like to tell you some of the other reasons. But if there is anything that is hard to speak and hard to hear it is praise to one's face. It will please you, I am sure, to know that the suggestion to give it met with eager, immediate and unanimous response. It will strengthen your hands to know that of those here, gathered from this wide country of ours, there is not one who does not feel that he does his daily work with greater ease and with greater certainty because of your labors.

We have filled this cup with a "modification" after an old prescription, a native of Northeastern Massachusetts. We trust that its "percentages" are judicious. As we hand it to you, and as it passes from lip to lip, we pledge you as our comrade, as our master and as our friend.

#### A NEW BLOOD PARASITE.

ACCORDING to the *Medical Press* a parasite found in the blood of a patient suffering from an intermittent form of fever has recently been described. The new vascular intruder belongs to the genus *trypanosoma*, and closely resembles *T. Brucei* in form and staining reactions, but it is decidedly smaller, and in fixed specimens displays a characteristic "set." Nepveu has claimed the discovery of this parasite in man—in Algiers, but his description is so imperfect as to leave his opinion rather doubtful. Mr. J. Everett Dutton described the parasite which he had found in the blood of a European at Bathurst in West Africa. It was present only during the pyrexial periods. Within the last month he has announced the interesting fact of the discovery of this parasite in native children. The symptoms which he had found in his European patient were irregular attacks of fever, with apyrexial intervals. There was also edema of the eyelids and of the feet, suggestive of some parasitic relationship with the

diseases of horses and cattle known as Nagana and Surra. This discovery opens an immense and important field of investigation and instruction regarding the native diseases of the *developing* Continent.

#### Obituary.

WILLIAM MILLER ORD, M.D., F.R.C.B. (LOND.)

DR. WILLIAM MILLER ORD died May 14 after an illness which had extended over several years. Dr. Ord received his early education at King's College, London, where he particularly distinguished himself in classical studies. He took his degree of M. B. at London University in 1857. He entered St. Thomas's Hospital, and after his services there as house surgeon became surgical registrar to the hospital in 1869. He became a member of the Royal College of Physicians of London, and shortly after was elected to the position of assistant physician to St. Thomas's Hospital. He later became dean of the St. Thomas Hospital Medical School, and under his jurisdiction the school rose to a point of eminence which it had never before attained. In 1875 he was elected to fellowship in the Royal College of Physicians and in 1877 he became physician to St. Thomas's. He soon became known as a clinical teacher and was closely followed by a large number of students. In scientific work Dr. Ord's name is particularly attached to the investigation of the subject of myxedema. Another remarkable work was a paper on the "Influence of Colloids upon Crystalline Forms and Cohesion." In Dr. Ord's death English medicine loses one of its most distinguished members. He was a man of broad education and of many interests, representing a type which is unfortunately becoming rare with the passage of time.

#### Correspondence.

##### WATER ON ASPHALT.

BOSTON, June 4, 1902.

MR. EDITOR: Sprinkling asphalt pavement, as conducted by the municipal authorities of Boston, contributes nothing to public comfort or good sanitation, and is a waste of public funds. It is practically impossible to keep the surface damp for any consecutive period, and as a matter of common observation, the surface is dry most of the time. Often all evidences of sprinkling disappear in ten minutes after the water cart passes, and it is very unusual when the water is not all evaporated in twenty minutes. It would therefore require from thirty to sixty applications of water a day of ten hours to keep the surface moist, the object of street sprinkling. These streets are now sprinkled from four to six times a day, which at best produces the desired effect for but a very small fraction of the time, during which the surface is made very slippery.

This method of sprinkling breaks up or rather disintegrates the horse-droppings, rendering the matter more difficult to remove with the implement usually employed. It slides over the finer particles, leaving much to be scattered by the wind when the street is dry. In damp weather much mud is tracked from the intersecting macadam, on the asphalt streets, and at such times the mud so firmly adheres to the surface, the street sweeper disturbs it very little, and its removal is only accomplished when broken up by traffic in dry weather, and the sprinkling is practically suspended through the necessary concentration of the carts on the macadam street. As a matter of fact, therefore, sprinkling as conducted adds to the annoyance from dust, wastes the water and renders the pavement unsafe to drive on a small fraction of the time.

In extremely hot weather the surface is probably made a little cooler by the application of water, but it is very doubtful if this is beneficial either to the pavement or by way of lowering the temperature of the air.

The best results are obtained where this pavement is kept clean and dry, and water should be employed only for flushing or washing the street, and a very light sprinkle in advance of the horse-sweeper.

Very truly yours,

HENRY J. BARNE<sup>c</sup>, M.D.

### FRACTURE OF THE NOSE.

FALL RIVER, MASS., June 6, 1902.

MR. EDITOR: Hippocrates was quoted in the April 24 number of your journal as saying that a bandage to a broken nose does harm by increasing the dislocations or depressions. It is not in regard to the application of the bandage to a broken nose that I wish to refer, but to the treatment of many fractures of the nose without any apparatus. If after fractures there is displacement of fragments, of course we try to restore them to their normal position. To my mind the best object we have to restore such fragments is the finger introduced into the anterior nares; next to the finger comes some solid instrument. If after these fragments are replaced they stay in position, I have found no reason for plugging the nostrils. Of course at times it becomes necessary to do this in order to hold the fragments in place, but experience has taught me that the nose can often be moulded into shape and good results be obtained without any apparatus.

Now one word about fracture of the nose complicated with lacerations, that is, about compound fractures. This often takes place of one nasal bone affecting only the side of the nose, the bridge remaining perfect. In these compound fractures I have had good results by removing the loose fragment that communicated with the wound. With this removed we know that it cannot obstruct the air passage. Of course if the fragment is large, and its removal is going to affect the natural contour of the nose, we should try to save it.

I have been prompted in writing this mainly because I realize that the doctor who is governed by the textbook will invariably associate fracture of the nose with nasal splints and think they are a necessity, whereas experience has taught me the uselessness of them in at least three-quarters of the cases.

Truly yours,

N. B. ALDRICH, M. D.

### RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, MAY 31, 1902.

CITIES.	Population Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Typhoid fever.	Cerebro spinal meningitis.	
New York . . .	3,665,352	1,304	419	23.16	12.80	2.76	.92	.23	
Chicago . . .	1,852,828	423	118	25.76	12.76	1.89	.94		
Philadelphia . .	1,349,624	445	121	20.63	12.58	1.12	1.12		
St. Louis . . .	603,717	—	—	—	—	—	—	—	
Baltimore . . .	625,330	168	49	27.97	10.71	2.98	—	—	
Cleveland . . .	411,826	—	—	—	—	—	—	—	
Pittsburgh . . .	376,742	—	—	—	—	—	—	—	
Buffalo . . .	341,401	139	50	25.18	15.10	—	9.34	—	
Cincinnati . . .	332,032	—	—	—	—	—	—	—	
Milwaukee . . .	304,975	—	—	—	—	—	—	—	
Washington . . .	289,537	—	—	—	—	—	—	—	
Providence . . .	185,870	60	9	23.32	10.00	1.67	—	1.67	
Boston . . .	588,736	203	48	23.64	15.27	1.47	.49	1.97	
Worcester . . .	127,337	40	12	15.00	12.50	—	—	2.50	
Fall River . . .	111,872	36	18	19.25	15.40	—	—	—	
Lowell . . .	90,574	33	8	18.18	18.18	—	—	—	
Cambridge . . .	96,334	19	6	21.05	10.52	5.26	—	—	
Lynn . . .	71,144	22	5	4.54	13.63	—	4.54	—	
Lawrence . . .	67,275	15	10	37.50	25.00	6.25	—	—	
Springfield . . .	66,854	22	8	13.63	13.63	—	—	—	
Somerville . . .	65,882	15	2	18.75	—	—	6.25	—	
Somerville . . .	65,574	21	5	9.52	—	—	—	—	
New Bedford . .	48,065	13	6	—	—	—	—	—	
Holyoke . . .	43,298	9	3	23.32	11.11	—	—	22.22	
Brookton . . .	40,392	15	9	33.33	20.00	—	33.33	—	
Haverhill . . .	36,567	14	5	14.28	—	—	—	—	
Salem . . .	36,836	13	1	33.33	—	—	—	—	
Newton . . .	35,390	7	1	28.60	14.30	14.30	—	—	
Malden . . .	35,264	15	4	—	66.67	—	—	—	
Chelsea . . .	33,943	7	3	14.30	—	—	—	—	
Fitchburg . . .	32,759	6	2	16.67	—	—	—	—	
Taunton . . .	27,114	3	2	—	—	—	—	—	
Everett . . .	26,533	8	3	—	—	—	—	—	
North Adams . .	26,121	—	—	—	—	—	—	—	
Gloucester . . .	25,307	6	—	33.33	16.67	—	—	16.67	
Quincy . . .	24,612	9	1	—	—	—	—	—	
Waltham . . .	22,311	4	—	—	25.00	—	—	—	
Pittsfield . . .	21,679	—	—	—	—	—	—	—	
Brookline . . .	20,390	8	6	37.50	12.50	—	12.50	—	
Chicopee . . .	20,014	3	—	33.33	—	—	—	—	
Medford . . .	14,478	—	—	—	—	—	—	—	
Newburyport . .	13,384	2	—	50.00	50.00	—	—	—	
Melrose . . .	13,038	7	2	14.30	14.30	14.30	—	—	
Westfield . . .	12,846	—	—	—	—	—	—	—	
Attleboro . . .	12,813	—	—	—	—	—	—	—	
Adams . . .	12,616	—	—	—	—	—	—	—	
Millis . . .	12,109	1	—	100	—	100	—	—	
Framingham . .	11,967	5	1	40.00	40.00	—	20.00	—	
Peabody . . .	11,894	2	1	—	—	—	—	—	
Revere . . .	11,544	—	—	—	—	—	—	—	
Gardner . . .	11,337	2	1	50.00	—	—	50.00	—	
Weymouth . . .	10,636	3	—	33.33	—	—	—	—	
Southbridge . .	10,600	—	—	—	—	—	—	—	
Watertown . . .	10,336	—	—	—	—	—	—	—	
Plymouth . . .	—	—	—	—	—	—	—	—	

### METEOROLOGICAL RECORD

For the week ending May 31, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind.		Velocity of wind.		Weather		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	8.00 A.M.	3.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	
S...25	29.84	68	76	61	77	88	82	W	S	9	8	O.	.03
M...26	29.70	70	80	60	90	75	82	S W	S W	20	6	O.	.11
T...27	29.66	63	71	55	84	94	89	S	W	5	12	O.	.05
W...28	29.66	50	57	43	82	66	74	S W	W	15	20	O.	.05
T...29	29.96	51	63	39	73	41	57	S W	W	12	9	O.	.05
F...30	30.02	61	69	53	80	57	68	S W	W	30	10	O.	.05
S...31	30.46	58	65	50	76	65	70	E	S W	8	17	O.	.05
	29.88	69	52			75							.19

\* O, cloudy; C, clear; F, fair; G, fog; H, hazy; S, smoky; R, rain; T, threatening; N, snow. † Indicates trace of rainfall. ‡ Mean for week.

Deaths reported 3,125; under five years of age, 936; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 715, acute lung diseases 410, consumption 345, scarlet fever 58, erysipelas 11, typhoid fever 31, whooping cough 35, cerebrospinal meningitis 12, smallpox 10, measles 45, diarrheal diseases 94.

From whooping cough, New York 17, Chicago 6, Philadelphia 5, Baltimore 1, Pittsburgh 1, Boston 2, Worcester, Cambridge and Lawrence 1 each. From measles, New York 12, Chicago 4, Philadelphia 5, Pittsburgh 13, Haverhill 5, Boston, Lynn, Somerville, Chicopee, Revere and Southbridge 1 each. From erysipelas, New York 5, Chicago 2, Philadelphia 1, Boston 2, Lowell 1. From smallpox New York 2, Philadelphia 5, Boston 3.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending May 17, the death-rate was 17.3. Deaths reported 4,919; acute diseases of the respiratory organs (London) 216, whooping cough 126, diphtheria 49, measles 144, smallpox 48, scarlet fever 51.

The death-rate ranged from 7.2 in Walthamstow to 27.0 in Bootle; London 16.2, West Ham 16.1, Croydon 13.2, Brighton 18.8, Portsmouth 13.6, Southampton 17.4, Bristol 16.0, Birmingham 18.5, Leicester 12.3, Nottingham 15.3, Birkenhead 19.5, Liverpool 22.0, Manchester 23.9, Salford 22.3, Bradford 18.9, Leeds 19.3, Sheffield 19.1, Hull 15.3, Newcastle-on-Tyne 20.7, Cardiff 14.8.

# CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING MAY 31, 1902.

J. H. FIELD, surgeon. Appointed surgeon from May 19.  
W. H. ULSH, assistant surgeon. Granted sick leave for three months.

R. WAGGENER, pharmacist. Ordered to Key West Naval Station.

S. W. DOUGLASS, pharmacist. Detached from Key West Naval Station and ordered to duty at the naval Proving Ground, Indian Head, Md.

F. L. BENTON, passed assistant surgeon. Detached from the "Columbia," May 31, and ordered to duty with a recruiting party leaving New York City on that day.

FOR THE WEEK ENDING JUNE 7, 1902.

H. H. GREEN, medical inspector. Detached from duty as a member of the Medical Examining Board, Washington, and ordered to the "Wisconsin" as fleet surgeon of the Pacific Station.

D. B. KERR, passed assistant surgeon. Detached from the Boston Navy Yard, June 5, and ordered to duty with a recruiting party.

H. T. PRACY, surgeon. Detached from the Naval Recruiting Rendezvous, Philadelphia, and ordered to the "Indiana."

C. BIDDLE, surgeon. Detached from the "Indiana" and ordered to the Naval Recruiting Rendezvous, Philadelphia.

JOHN W. ROSS, surgeon, retired. Relieved from duty with the War Department in Cuba, to take effect June 15, when he will report to the Secretary of the Navy.

## SOCIETY NOTICE.

THE AMERICAN RÖNTGEN RAY SOCIETY.—The American Röntgen Ray Society will hold its next meeting in Chicago, Dec. 10 and 11, 1902.

## BOOKS AND PAMPHLETS RECEIVED.

Preliminary Announcement of Simmons College, Boston, 1902. Boston: George H. Ellis Co., Printers.

The Implantation of the Tubercle Bacillus. By Lawrence F. Flick, M.D., of Philadelphia. Reprint. 1902.

Second Annual Report of the National Jewish Hospital for Consumptives at Denver, Colo. Illustrated. 1901.

Transactions of the Chicago Pathological Society, April 14, 1902. Chicago: American Medical Association Press.

Forty-sixth Annual Announcement. Portland School for Medical Instruction. Illustrated. Portland: Stephen Berry. 1902.

Proceedings of the Orleans Parish Medical Society. Published Monthly by the Society. New Orleans: The L. Graham Co. (Ltd.)

Twenty-fourth Annual Report of the Board of Health of the City of Lowell, for the Year 1901. Lowell, Mass.: Union Printing Co. 1902.

Diseases of the Nose, Pharynx and Ear. By Henry Gradle, M.D. Illustrated. Philadelphia and London: W. B. Saunders & Co. 1902.

Proceedings of the American Medico-Physiological Association at the Fifty-Seventh Annual Meeting held in Milwaukee, Wis., June 11, 12, 13, 14, 1901.

Note on the Fever of Hodgkin's Disease; Recurrent (Rückfall) Fever; Epstein's Disease. By J. H. Musser M.D., of Philadelphia. Reprint. With Chart. 1902.

Yellow Fever in France, Italy, Great Britain and Austria and Bibliography of Yellow Fever in Europe. May, 1902. Washington: Government Printing Office. 1902.

Transactions of the American Pediatric Society. Thirtieth session held at Niagara Falls, N. Y., May 27, 28 and 29, 1902. Edited by Walter Lester Carr, M.D. Vol. XIII. Reprint. 1901.

Practical Dietetics, with Special Reference to Diet in Disease. By W. Gilman Thompson, M.D. Second edition, enlarged and thoroughly revised. New York: D. Appleton & Co. 1902.

Sociologic Studies of a Medico-Legal Nature. By Louis J. Rosenberg, LL.B., and N. E. Aronstein, M.D., Ph.G., with introduction by Hon. Clark Bell, LL.D. Chicago: G. P. Engelhard & Co. 1902.

The Practitioner's Manual, a Condensed System of General Medical Diagnosis and Treatment. By Charles Warrenne Allen, M.D. Second edition, revised and enlarged. New York: William Wood & Co. 1902.

The Principles of Bacteriology: A Practical Manual for Students and Physicians. By A. C. Abbott, M.D. Sixth edition, enlarged and thoroughly revised. Illustrated. Philadelphia and New York: Lea Brothers & Co. 1902.

Artificial Respiration by Direct Intralaryngeal Intubation with a Modified O'Dwyer Tube and a New Graduated Air-Pump, in its Applications to Medical and Surgical Practice. By Rudolph Matas, M.D., of New Orleans. Illustrated. Reprint. 1902.

The Young Physician. By Emil Amberg, M.D., of Detroit, Mich., Secretary of the Committee on Uniform Medical Legislation of the Conference of the Committee on National Legislation of the American Medical Association and Affiliated Societies. Reprint. 1902.

A Practical Treatise on Smallpox, illustrated by Colored Photographs from Life. By George Henry Fox, A.M., M.D., with the collaboration of S. D. Hubbard, M.D., S. Pollitzer, M.D., and J. H. Huddleston, M.D. Parts I and II. Philadelphia and London: J. B. Lippincott Co. 1902.

The Practical Medicine Series of Year Books, comprising Ten Volumes on the Year's Progress in Medicine and Surgery. Issued monthly under the General Editorial Charge of Gustavus P. Head, M.D. Vol. V. Edited by Reuben Peterson, A.B., M.D., and Henry F. Lewis, A.B., M.D. Chicago: The Year Book Publishers. 1902.

Sanatoria for Consumptives. A Critical and Detailed Description, together with an Exposition of the Open-Air or Hygienic Treatment of Phthisis. By F. Rufenacht Walters, M.D., M.R.C.P., with an Introduction by Sir Richard Douglas Powell, Bart., M.D., F.R.C.P. Second edition. New York: E. P. Dutton & Co. 1902.

Jahresbericht über die Fortschritte in der Lehre von den Pathogenen Mikroorganismen umfassend Bacterien, Pilze und Protozoen Unter Mitwirkung von Fachgenossen bearbeitet und herausgegeben von Dr. med. P. von Baumgarten und Dr. med. F. Tangl. Sechzehnter Jahrgang 1900 Erste Abtheilung. Leipzig: Verlag von S. Hirzel. 1902.

Empyema of the Frontal Sinus: Some Observations on its Treatment. By George L. Richards, M.D., of Fall River, Mass., Otolologist and Laryngologist to the Fall River Union Hospital; Fellow of the American Otological Society; Fellow of the American Laryngological, Rhinological and Otological Society, etc. Illustrated. Reprint. 1902.

King's College Hospital Reports; being the Annual Report of King's College Hospital and the Medical Department of King's College. Edited by Norman Dalton, M.D., F.R.C.P., Albert Carless, M.S., F.R.C.S., John Phillips, M.A., M.D., F.R.C.P., W. D. Halliburton, M.D., F.R.S. Vol. VII. Oct. 1, 1899, to Dec. 31, 1900. London: Acland & Son. 1901.

Clinical Contributions. I. Papillo-Retinitis due to Chlorosis; II. Two Cases in which Eye Strain was Relieved by Vertical Decentration of Lenses. By Cassius D. Wescott, M.D., Assistant Professor of Ophthalmology, Rush Medical College, and Brown Pusey, M.D., Late House Surgeon, New York Eye and Ear Infirmary. Reprint. 1902.

Hemoglobinuria Complicating Typhoid Fever. By John H. Musser, M.D., of Philadelphia, Professor of Clinical Medicine, University of Pennsylvania; Physician to the University Hospital, etc., and Aloysius O. J. Kelly, M.D., of Philadelphia, Instructor in Clinical Medicine, University of Pennsylvania; Assistant Physician to the University Hospital, etc. Reprint. 1901.

Nothnagel's Encyclopedia of Practical Medicine. Diphtheria, by William P. Northrup, M.D.; Measles, Scarlatina, German Measles, by Theodor von Jürgensen, M.D. Edited with additions by William P. Northrup, M.D. Authorized translation from the German, under the Editorial Supervision of Alfred Stengel, M.D. Philadelphia and London: W. B. Saunders & Co. 1902.

International Clinica, A Quarterly of Illustrated Clinical Lectures and Especially Prepared Articles on Medicine. Neurology, Surgery, Therapeutics, Obstetrics, Pediatrics, Pathology, Dermatology, Diseases of the Eye, Ear, Nose and Throat, and Other Topics of Interest to Students and Practitioners. By leading members of the Medical Profession throughout the world. Edited by Henry W. Cattell, A.M., M.D. Vol. I. Twelfth Series, 1902. Philadelphia: J. B. Lippincott Co. 1902.

## Addresses.

### THE RELATION OF MEDICAL SCIENCE TO COMMERCE.<sup>1</sup>

BY FRANK BILLINGS, M.S., M.D., CHICAGO.

I HAVE been informed that there is no rule of the association which fixes the subject of this address. I hope I may be pardoned when I depart from the custom which my predecessors have usually followed when they confined the subject of the address to the progress of medicine during the year just past.

We live in a period of the greatest activity in the history of the world. Modern inventions annihilate time and distance. Electricity and steam approximate the most distant parts of the civilized globe. Vast amounts of capital are invested in electrical, steam and other related interests. Large commercial enterprises are carried on or launched into new fields, which require money, the employment of the brightest intellects and skilled and common labor.

Competition is great in all the affairs of men. The struggle for supremacy between nations and between men was never so fiercely contended as now. The world is richer than ever before. Great individual fortunes, the result of the efforts of the few years of a single span of life, are seen everywhere. The wage of the laborer in our country is larger than ever before and he may command the necessities as well as many of the comforts of life.

This modern restless activity, with its nerve-racking; the evil results of a luxurious life; the moral obliquity which it may breed, as well as many other conditions which affect the health of individuals, while of interest to medicine, do not concern us in the consideration of the broader subject of this paper.

#### THE BROADER APPLICATION OF MEDICAL SCIENCE.

Medical science is interested in and is of greater importance to the world than ever before in protecting individuals, states and nations from infectious diseases, which are rendered more dangerous than formerly because of a denser population, increased facilities of communication between the peoples of the earth, by travel, and by national and international interchange of food and other commercial products.

Medical science, too, is closely identified with the vast moneyed interests of the merchant marine and of national and international commerce. Quarantine against the spread of infectious disease is applied wisely or foolishly in direct ratio to our knowledge or ignorance of the cause, the means of transmission and the evolution of disease. So, too, medicine has to do with the knowledge which will enable man to escape from and finally remove the conditions which cause

infection and which render a country uninhabitable to civilized man.

Medical science must safeguard man against infection and intoxication from parasitic diseases of animals used for food and from contaminated and adulterated food and drink. Not only from a humanitarian standpoint is medical science related to commercial pursuits, but the sciences related to medicine have done much to preserve animals used for food and to protect agricultural interests of many kinds from disease and destruction.

One may say, I think, that in no other pursuit which engages the serious attention of men are there as many earnest, unselfish and philanthropic workers as there are today in the broad field of medicine. In the various departments of science related to medicine one finds educated, skilled, energetic, earnest workers after truth, willing to sacrifice home, friends, health and life for the advancement of the science which has for its primary object the conservation and prolongation of human life. Pecuniary reward for them is never large and never commensurate with the character of the work. Furthermore, great and astounding as are the modern commercial inventions, the progress made in medical science during the last twenty years is equally great.

Is modern medicine prepared to meet the demands of modern progress concerning the questions which interest humanity and commerce? Let us answer the question by a brief retrospect of the progress of medicine and by a statement of the present status of medical science.

#### FIRST APPLICATION OF PHYSICAL SCIENCE TO MEDICINE.

From the latter part of the eighteenth to the beginning of the last quarter of the nineteenth century the science of medicine developed steadily upon a rational physical basis. Jenner's discovery of the protection of the human race against variola by vaccination with cowpox, illuminates with noonday splendor an era otherwise gloomy with its hypotheses, theories and superstitions concerning disease. This single brilliant achievement of the end of the eighteenth century was the beginning of the evolution in medical science which made the nineteenth century notable. The application early in the nineteenth century of physics, of physiology, of pathologic anatomy and of chemistry, to the study of disease, developed a more exact knowledge than before existed. To Auenbrugger that early period owes much through the discovery of methods of physical examination which were slowly developed and perfected by Corvisart, Laennec, Piorry, Skoda, Wintrich, Traube, Louis, Cheyne Stokes, Graves, Corrigan, Flint, Scudamore and others. Pathologic anatomy made wonderful strides under the labors of Virchow, Rokitansky, Arnold, Stilling and their students. Physiology was developed by the labors of Johannes, Müller, Brücke, Helmholtz, Trousseau, Vierordt, Foster, Carpenter, Magendie, and their disciples; and the fuller knowledge embraced in

<sup>1</sup> Address in Medicine, delivered at the Fifty-third Annual Meeting of the American Medical Association, held at Saratoga Springs, New York, June 10-13, 1902.

physiologic chemistry was added to the rapidly broadening field of medicine by Hoppe-Seyler, Schwann, Stricker, Prout, Liebig and others.

#### BACTERIOLOGY.

The development of the microscope during the second and third quarters of the past century added a mighty weapon to the armamentarium of the physicist. The microscope was an aid to the investigators of pathologic anatomy, of physiology, of chemic physiology and of other subjects, and it was the one necessary means by which the teeming world of bacteria was made visible. This discovery and the knowledge which has come from a study of these infinite and yet often mighty beings have revolutionized medicine.

It was Pasteur's brilliant studies of the infective microbes of air which led to the discovery of the source of contamination of wounds and which made it possible for Lister to evolve a method of protection of wounds from air infection. The aseptic surgery of today is but the evolution of Listerism which had its basis of existence in the discoveries of Pasteur. With the microscope Pasteur rid the world of the superstition of spontaneous generation. He proved the infectiousness of dust-borne air through the microbes it carried. He blazed the way for others in the study of bacteria as agents of putrefaction, fermentation and of pathologic infection in animals.

Bacteriology became an exact science with the discovery of Robert Koch of cultural methods which made differentiation of bacteria possible. The causative relation of bacteria to all infective processes was practically proved by the laws promulgated by Koch. In twenty years the bacterial cause of tuberculosis, typhoid fever, cholera, diphtheria, pneumonia, pyogenic processes, erysipelas, gonorrhea, epidemic meningitis, epidemic dysentery, the plague, charbon, glanders, tetanus, influenza, and lepra has been proved.

#### PARASITES.

The discovery of the hematozoön of malaria by Laveran; the recognition of the ameba of dysentery by Loesch; of the ray fungi, and especially the actinomyces as infective agents in the lower animals and in man, and the more exact knowledge of other animal parasites infecting man and animals, which the microscope has made clear, have been as epoch-making in parasitology as the discoveries of Pasteur and Koch in bacteriology.

#### TRANSMISSION OF INFECTION.

The recognition of the relation of bacteria, protozoa and animal parasites to infective disease has been the means of a more exact knowledge of the clinical phenomena of disease, of morbid anatomy, of physiology and of physiologic chemistry than would have been possible without it.

The knowledge of the cause has led to a study of the life history of infective organisms outside

of as well as in the animal body. The mode of propagation, the means of transmission of infective micro-organism, by fomites, and other agents, has become known. The rôle which insects, which infect animals, play as definitive or intermediate hosts, has been studied and proved. The discovery of Manson of the transmission of *filaria sanguinis hominis* by the mosquito was of vast importance as a suggestion of the mosquito as a definitive host in malaria. The investigations of Manson, Ross, Celli, Grassi, Dionise, Marchiafava, Bignami, Koch and others have made our knowledge of malaria exact. With the microscope we may now not only recognize malaria and differentiate it from the other infective fevers, but we may also at the same time recognize by an examination of the blood the type of malarial infection and foretell its course. Not only may we recognize the disease definitely and apply the drug treatment more rationally, but the knowledge of the means of its transmission from man to man enables us to apply preventive measures which, as we shall see later, are of the greatest importance from a commercial as well as from a humanitarian point of view. The recognition of rôle of the mosquito in malaria has been, furthermore, a stimulus to the study of the same insect in relation to other infections.

The brilliant research work of our own Reed and Carroll in 1900 in Cuba, by which they proved that the mosquito of the genus *stegomyia* is the sole means of the transmission of yellow fever from man to man is of great importance as a scientific fact. The influence of this discovery upon mankind as a prophylactic against a disease which has killed multitudes and also from a monetary point of view, in reference to commercial pursuits, is not appreciated at this time as it should be.

Hardly less important is the fact that the *bacillus pestis* may infect fleas and these in turn infect rats, mice and man. It is important, too, to know that pests like the housefly may be carriers of infective bacteria from refuse filth to our kitchens and tables and contaminate food and thus infect us with typhoid fever, cholera and perhaps other diseases which are propagated by filth.

The study of bacteria in the laboratory and in the blood tissues of infected animals has led to the discovery of the means by which bacteria disturb the animal economy and produce phenomena expressive of disease. The fact that the blood and tissues of infected animals contained a toxin which could also be isolated from pure bacterial cultures in the laboratory and that this toxin when introduced into an animal was capable of exciting the same phenomena of disease as the bacteria themselves, was positive proof that bacteria excite disease phenomena by means of a toxin which they form. The elaboration of anti-toxins in the body of the infected animal was also promptly recognized and served to explain not only the self-limitation of many of the infective diseases, but it also helped us to understand the

immunity which one attack of some of the bacterial diseases affords.

#### PROTECTIVE INOCULATION.

Long before bacterial toxins were recognized as the cause of disease phenomena, Pasteur established the principle of protective inoculation with bacteria of lessened virulence, which was brought about by attenuation of the bacteria by a modification of cultural methods and also by serial inoculation of certain lower animals. This he successfully applied to charbon in sheep and cattle and to chicken cholera. In both of these diseases the bacteria were known and the problems of attenuation could be carried on in the laboratory by direct study of the bacteria before inoculation and afterward when they were recovered from the bodies of the animals experimented on.

His final life's work was no less important, in firmly fixing the immunizing influence of attenuated bacterial inoculation in rabies. Here the discovery of the infecting bacterium escaped every known means of recognition by examination of the tissues and blood of the infected animals microscopically and culturally. Apparently there are pathogenic bacteria which we do not know because we have not yet recognized the proper culture material for the successful artificial cultivation of them, nor have we discovered the tinctorial reaction which they may possess and, finally, it is not improbable that they may be infinitely smaller than other bacteria and, therefore, considerably more difficult to recognize.

Pasteur recognized the fact that in hydrophobia the brain and other nervous tissue of an infected animal are capable, when inoculated into another animal's brain, of producing the disease. That the infected brain, used for inoculating animals, contained the bacteria, which caused the disease, was proved by the fact that a stage of incubation occurred in the inoculated animal and that a series of animals were successfully inoculated consecutively from the first. Pasteur then successfully attenuated the unknown bacterium of hydrophobia present in the nervous tissues of an inoculated animal by dessication of the nervous tissue in a sterile apparatus by methods too well known to repeat. Nor is it necessary to occupy time in repeating the well-known methods pursued by Pasteur and his pupils in the use of the graduated doses of attenuated bacteria contained in the nerve tissues in the prophylactic treatment of rabies. To Pasteur, therefore, do we owe the scientific recognition of the principle of protective inoculation.

It is now a well-known fact, however, that inoculation against disease was practised by the Chinese 1,000 years ago. They inoculated the healthy with smallpox as a protection against the disease. Variolization was also practised in Europe in the seventeenth and eighteenth centuries. We read that in 1718 Lady Montague caused a son to be inoculated with variola in Italy and that two

years later her daughter was inoculated in England. The practice was followed in Ireland long after the successful establishment of vaccine as a protection against variola. Inoculation against syphilis, or syphilization, was also practised in Europe during the nineteenth century.

To Jenner, however, do we owe the first example of the protective inoculation by means of an attenuated virus. This attenuation we now know was established by the accidental inoculation of milch cows with smallpox, producing a modified disease, vaccinia. That vaccinia, produced in man by inoculation direct from the cow, would protect against smallpox was proved when, in 1798, Jenner successfully vaccinated, direct from the cow, the five-year-old lad, William Summers.

The thousands of successful vaccinations which have since been performed and the thousands of lives which have been saved by vaccination are proof of its validity and utility. The immunity established by protective inoculation is apparently the same as that induced by an unmodified attack of variola.

#### SERUM THERAPY.

When chemistry had revealed the nature of bacterial poisons and experiments established their relation to the phenomena of disease, it was proved that substances were formed in artificial culture media and in the blood and tissues of infected animals which had the power to neutralize the effect of the bacterial poison in other animals infected with the same organism. Further investigation showed that an animal inoculated with the laboratory preparation of antitoxin was protected against the disease.

Furthermore, it was found that the blood serum of an animal inoculated with bacteria in a non-fatal and repeated dose contained an antitoxin. When the blood serum of the infected animal was injected into a healthy animal, the latter was protected against the original disease.

Antitoxin was, therefore, proved to be formed in artificial media of bacterial cultures and in the bodies of infected animals. When the antitoxin thus formed was injected into an animal it had the power to protect it against the particular bacterial infection or, if given subsequent to the infection of the animal, to mitigate the severity of the disease or to entirely check it.

Thus, by Koch and his students, was serum therapy established as a principle. Upon this principle there has been established and given to the world the antidiphtheritic serum of Behring and of Roux.

A curative or immunizing serum has been developed for Asiatic cholera, tetanus, erysipelas, plague, epidemic dysentery, streptococcus infection and other diseases. While the serum treatment has not proved successful in all the diseases in which it has been employed, it has been so successful in some—diphtheria, for instance, as to firmly establish the principle of serum therapy.



#### INFLUENCE OF BACTERIOLOGY UPON PRACTICAL MEDICINE AND SURGERY.

These practical results in specific prophylactic and curative therapy is but a part, however, of the influence which bacteriology has had upon medicine. The stimulus given by bacteriology to the study of pathologic anatomy, physiologic chemistry, clinical phenomena and of physical and chemical changes of the fluids and tissues of the body, has resulted in a knowledge so comprehensive that medical science has been revolutionized within the last twenty years. Speculative theories and hypotheses have given place to facts based upon sound principles proved by experiment and clinical observation.

Bacteriology made possible the comprehension of perfect cleanliness, and enables the surgeon to invade every part of the body without fear of infection, and has saved thousands of lives which twenty-five years ago perished miserably as the result of disease at that time inoperable, or the result of infection from contact with the surgeon. By means of cleanliness and skill, induced by a broader experience, the surgeon has been able to add to our knowledge information of great value which could have been obtained probably in no other way. He has been able to study disease in the living body and show the relation of a disease process to infection. He has thus been able to clear away many of the misconceptions of symptomatology and diagnosis, especially in disease of the abdominal organs.

Bacteriology has stimulated laboratory clinical diagnosis. Bacterial reaction to sera and blood cultural tests are of the greatest aid to diagnosis. Clinical research work has command of an armamentarium consisting of a knowledge of pathologic anatomy, of physiology, of bacteriology, of chemic physiology and of physics, which allows of a precision in diagnosis never before at the command of the physician.

From the foregoing it seems sufficiently demonstrated that today medical science possesses a knowledge so exact that we may answer definitely the question of our relation to the commercial affairs of the world. Infectious diseases which affect agricultural interests, like swine plague, rind pest, fowl cholera, glanders, tuberculosis, actinomycosis, trichinosis and many of the parasitic diseases of plants and of animals, have been studied by scientists with most definite results.

#### PREVENTION OF INFECTION.

Today no sane man believes in spontaneous generation. The presence of an infective disease, either bacterial, protozoic, parasitic or fungus, means the recognition of progenitors in the near environment of the infected organism. In practically every one of the diseases of animals above named the scientific investigator has already discovered the nature of the infecting agent, knows its life history, what conditions are most necessary for its propagation and multiplication, and what will remove and annihilate so dangerous an enemy.

Our Department of Agriculture, and especially the Department of Animal Industries, has done much to place comparative medicine on a scientific basis. Briefly stated, there is not a fungous-parasitic, animal-parasitic, protozoic or bacterial disease of the lower animals which can not, with our present knowledge, be stamped out for all time.

Why do the acute epidemic infections attack the swine, fowl and cattle of the agriculturist? Because the causative germ is allowed to live and multiply after a former epidemic, or it is transplanted from place to place by infected animals or by fomites. All of these acute diseases of the lower animals are preventable. One has but to read of the labors and investigations of Pasteur, in relation to charbon, to the silkworm disease and to fowl cholera to know what indifferent, careless methods may do to prolong and propagate an infection. On the other hand, proper precautions as to the destruction by fire of the infected bodies of animals and plants, the application of cleanliness through the use of abundant pure water, pure food, air and sunlight would extinguish an epidemic.

This may imply the loss of infected property by the individual, the municipality, the state or the national government, but fall the loss where it may, it is often necessary to destroy absolutely the infected organism that the greater commercial interests as well as the health of the people may be preserved. For example, actinomycosis of cattle, trichinosis of swine, tuberculosis of cattle, may be absolutely controlled and finally obliterated by proper sanitary measures. The expense of such an undertaking would be relatively great, but under the direction of scientists it can be done. Pasteur, with the aid of the government of France, abolished swine plague, charbon, silkworm disease and other conditions harmful to the agricultural interests, with the result that millions of francs were saved to individuals, to corporations and to the government.

The same happy result would occur here, and in addition the health of our people would be protected against the possible infection with tuberculosis, actinomycosis, trichinosis and intoxication from other infected animal foods.

#### SMALLPOX.

But what of the epidemic scourges of the earth, smallpox, yellow fever, cholera and the plague? No rational individual can for a moment doubt the protective influence of bovine vaccination against smallpox. Let one but look up the statistics of the mortality of this disease in the anti-vaccination period and he will become convinced of the utility of protective vaccination. In London the annual mortality from smallpox from 1660 to 1810 per million of the population was 2,040 to 5,020, while with vaccination, not adequate, however, the death-rate per million was from 1831 to 1835, 830; 1838 to 1853, 513; 1854 to 1871, 388; 1872 to 1882, 262; 1883 to 1892, only 73.

In Germany, where variola had decimated the population in the prevaccination period, thorough vaccination has practically stamped out the disease. Compulsory vaccination properly enforced would effectually eradicate the disease and would free commerce of the losses due to quarantine regulations. The question of individual rights, especially under a republican form of government, is debatable when one considers that science has proved the efficacy and utility of protective vaccination against variola; that with modern methods the process is free from the danger of inoculation with any other disease; variola is practically a harmless disease and, finally, that an individual right may become an evil when the practice of it subjects others to unnecessary risk of health, life and property.

Medical science, therefore, possesses the knowledge to rid the earth of variola. From a humanitarian point of view, this knowledge is priceless. Still, let one but compute the sum saved to the nations of the earth by vaccination, estimating each life saved at \$5,000, the usual valuation placed upon human life by statute. Great as would be this sum, it is many times less than that saved to the commercial interests of the world by the control of the disease which even inadequate vaccination has afforded. Think for a moment of the loss to commercial interests by quarantine and other restrictive measures, in the event of an epidemic of variola, without protection from vaccination.

#### THE PLAGUE.

The plague, the Black Death, which was first recognized in Europe in the year 543 as the *Peste Justinienne*,<sup>2</sup> became pandemic in the fourteenth century, and 24,000,000 people are said to have died of it. In 1655, London alone lost 70,000 people from the plague. It disappeared from Europe about 1720. It continued, however, in Egypt, Asia and other Eastern countries in small foci, occasionally occurring as severe local epidemics. In 1830, 60,000 people died of the pest in Bagdad. During the remainder of the nineteenth century it appeared sporadically in Asia, Turkey, Tripoli, Persia and other Asiatic countries. In 1891 it reappeared in epidemic form in middle China. From that date to the present time it spread over China, reaching Canton in 1894, Hong Kong in epidemic form in 1896, and in Bombay the same year. It appeared in Oporto, Spain, in 1899; in Glasgow in 1900, and in San Francisco in 1901, not to mention sporadic cases elsewhere in seaports of Europe and Central and South America.

In 1894 Dr. Yersin, director of the Pasteur Institute at Hong Kong, discovered the *bacillus pestis*. He elaborated a serum which has since been used with success as a prophylactic and curative agent. Haffkine prepared a protective vaccine which has also proved successful as a protective inoculation. It has been used in hundreds of thousands of cases in India with no harm-

ful results, and is said to reduce the susceptibility at least 75% and the mortality about 90%.<sup>3</sup>

The plague, the Black Death of the fourteenth century, still exists and rages with fearful mortality in communities which have no regard for hygienic surroundings. It is communicated to people through the abraded skin, or by flea bites, through the respiratory tract apparently by bacteria in dust-laden air and also through the alimentary tract by contaminated ingesta. Modern hygienic measures, which consist of perfect cleanliness, isolation, the destruction of vermin and the use of Haffkine's vaccine as a prophylactic and Yersin's curative serum, serve to control the disease. There can be no doubt that if sanitary authorities will take proper precautions to recognize the disease, proclaim its presence and then control it by the means which science has discovered, that the terrible scourge may be safely held in check and finally abolished from every civilized community.

The value to commerce of the discoveries of science in relation to the plague cannot be computed. While the knowledge of its cause and prevention is exact, the impossibility of controlling the unsanitary conditions of the countries of the East and even of our own western world makes it necessary to continue the quarantine regulations which so often restrict commercial ends.

#### YELLOW FEVER.

The mortality from yellow fever in the United States during the last one hundred years, 1798-1897, has been about 80,665.<sup>4</sup> This gives an average annual mortality of 807. Several severe epidemics have occurred and it has prevailed extensively in smaller towns where the mortality records have not been kept. Hence the above figures do not represent the full annual death-rate from the disease. Yellow fever has been the scourge of the West Indies, Central and South America, Mexico and of our Gulf States.

Recognized as an infective disease, indefatigable search has been made for the bacterial cause by many earnest workers. Apparently up to the present time the specific infective germ has not been found. Indeed, from a recent paper<sup>5</sup> by Reed and Carroll, it would seem that the bacterium must be infinitesimally small.

Although we do not know the specific bacterium of yellow fever, a most brilliant discovery has been made of the means of transmission of yellow fever by means of the mosquito (*stegomyia fasciata*) by two of our countrymen:<sup>6</sup> Walter Reed, surgeon, U. S. Army, and James Carroll, contract surgeon, U. S. Army. Twenty years ago Finley associated the transmission of yellow fever with the mosquito, but no proof of this was given until

<sup>2</sup> Pacific Medical Journal, January, 1901.

<sup>3</sup> Obtained from the records through the kindness of Surgeon-General Walter Wyman, U. S. M. H. S.

<sup>4</sup> The Etiology of Yellow Fever, American Medicine, Feb. 22, 1902.

<sup>5</sup> Experimental Yellow Fever, Transactions Association American Physicians, vol. xvi, 1901.

<sup>6</sup> Ph. Hauser: La Peste dan les temps anciens, etc., Paris, 1900.

the epoch-making and decisive experiments of Reed and Carroll. Furthermore, these experimenters proved that fomites contaminated with the vomitus and discharges of yellow fever patients do not transmit the disease to man.

In Havana, Cuba, the sanitary authorities of the United States have attempted during the last year or more to test the fact of yellow fever transmission by the mosquito. To this end the city was made clean; the breeding-places of mosquitoes in and about Havana were destroyed as far as possible and persons suffering from yellow fever were isolated and protected from the mosquito. Thus the number of mosquitoes were much diminished and care was taken that remaining mosquitoes did not become infected by biting yellow fever patients. As a result yellow fever disappeared from Havana and for the first time in years no case had occurred up to May 1 of this year. The usual marine quarantine regulations of the United States restricting the non-immune travel from Cuba was postponed. Furthermore, the Congress of the United States will probably modify the quarantine regulations in reference to yellow fever to meet the more hopeful conditions which the researches of Reed and Carroll have established in relation to the definite transmission and control of the disease.

There can be no doubt of the practical value of this important discovery to mankind. Proper sanitary measures in reference to cleanliness, the destruction of mosquitoes and their breeding-places and proper precautions against the infection of the few undestroyed mosquitoes by isolation of every imported case of yellow fever will eradicate the disease from every civilized country.

#### MALARIA.

Malaria has not borne as important a relation to commercial communications between peoples as yellow fever and the plague. Nevertheless, it has had an enormous influence upon the health and prosperity of the inhabitants of certain regions where it is endemic and at times epidemic in its prevalence. The principles which prevail to induce malaria in a certain region is the existence of human malaria and of the mosquito of the genus *anopheles*.

The mosquito is annoying but harmless until she becomes infected with malaria by biting a human being infected with the disease. Such an infected mosquito may inoculate all the people she subsequently stings. In this manner a region ordinarily free from malaria may become infected by the importation of a case of malaria from a distant point. It is also possible that a mosquito infected with malaria could be transported by railroad or ship in the luggage or clothing a considerable distance and then sting and infect individuals in its new environment.

We have many examples of infection of people in localities usually free from malaria, through its introduction by means of imported laborers employed in the construction of railroads, canals, etc. Malaria was rarely found in Chicago until

1891, when the construction of the World's Fair buildings was commenced. Then it was attributed to the excavations and to the turning of virgin soil. The construction of the Chicago Drainage Canal began at the same time and continued until 1900. During that period malaria was constantly present in Chicago and in 1898-1899 was augmented by importation of infected soldiers from Cuba and other malarious regions. No one can doubt that malaria was imported in the persons of some of the foreign laborers employed in the above-named enterprises, and that the previously innocent *anopheles* became infected and afterward inoculated many people who suffered from malaria at the period named.

The mortality of malaria in malarious districts with a considerable population is large. Thus Professor Celli<sup>7</sup> says that the mean mortality from malaria in Italy is about 15,000 victims annually, and that about 2,000,000 cases occur in Italy each year. As the mean duration of malaria is generally long, sometimes infecting the individual for years, the loss of labor and of production and the expense entailed in dealing with the disease, amounts to several millions of francs. Furthermore, Celli says that owing to malaria about 5,000,000 acres of land remain uncultivated with a resulting large economic loss. According to the very accurate calculations of Ricchi, the Adriatic Railway Company, with 1,400 kilometres of road and employing 6,416 men, spend on account of malaria alone 1,050,000 francs a year. In the Italian Army, in the twenty years from 1877 to 1897, there occurred more than 300,000 cases of malaria. Finally, Celli<sup>7</sup> says malaria annually costs Italy incalculable treasure.

Malaria is so widely disseminated over the world and the opportunity for continued infection of the mosquito so great that it seems almost hopeless to try to eradicate the disease. The principle upon which malaria may be fought has been suggested by science and has proved of value. This consists of the destruction of the mosquito and its breeding-places. The prevention of the infection of the remaining mosquitoes by isolation of the malarious individual from the mosquito and the diminution of malarial material in man by an attempt to cure him with quinin and other antimalarial remedies.

Experiment has already demonstrated that non-immune individuals may live safely in the most malarious districts, with adequate yet simple protection from the sting of the mosquito infected with malaria. Man thus protected against malaria may now explore, settle in and develop regions of the earth hitherto inaccessible because of the danger from the deadly tropical malaria.

This address would become too long were one to take up other infectious diseases, although in some of them the science of medicine has made such successful investigations that the knowledge of the cause, means of propagation and dissemination is exact.

<sup>7</sup> Malaria According to New Researches, 1900.

## TYPHOID FEVER.

I cannot close without saying that if in typhoid fever we could employ, unembarrassed by the great cost of the necessary measures, the precautions which science affords to prevent water and food contamination, that the disease would be effectually abolished. The great cost of the measures necessary to stamp out typhoid fever would, however, be an economic measure, inasmuch as the immense value to the state of the conservation of the labor of the thousands sick and the lives saved each year would more than compensate for the treasure spent.

## VALUE OF MEDICAL SCIENCE RECOGNIZED.

However much medical science has done for humanity, and great as the value of the knowledge of infectious disease is to the commercial interests of the world, scientists have not, especially in our own country, received the recognition and financial aid from the state, from corporations or from wealthy individuals which they deserved.

## MEDICAL SCIENCE SHOULD RECEIVE FINANCIAL SUPPORT.

Medical science should receive the moral and financial support of states and municipalities in the employment of the measures which science has proved to be efficacious in modifying, restricting and abolishing infectious disease. Wealthy corporations and individuals should establish institutes of original research in properly constructed and equipped hospitals and laboratories. There the many earnest, indefatigable and conscientious medical investigators could make more perfect the knowledge we already possess of many of the infectious diseases and, unembarrassed by financial needs, could search for the cause, the means of transmission and the prevention and cure of the diseases of which we know but little.

Funds, too, should be created to support the cost of committees of scientific investigators in regions now dangerous to the white man. By such means the many plagues of the tropics would be investigated and conquered. Regions uninhabitable or dangerous to the Caucasian would become accessible to settlement and commercial intercourse. Civilization, humanity and commerce would be advanced and multiplied.

It is right, therefore, that medical science should demand of the moneyed interests of the world the recognition which, though long withheld, is her just due. This she asks, not that individuals may profit in either fame or fortune, but that she may the more readily rid the world of infectious diseases for the sake of humanity.

**LAW AND MEDICINE.**—Princeton graduated this year a class of 258 men. Of this number 69 have asserted their intention of pursuing the law as a profession, while only 23, or exactly one-third as many, will choose the more arduous study of medicine.—*Medical News.*

SUTURE OF HEART WOUNDS.<sup>1</sup>

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## THE RECORDED SUTURES OF THE HEART.

In 1896 three operations for the suture of wounds of the heart muscle were done. Two are recorded as having been done in 1897. Four are credited to 1898. In 1899 the heart was sutured eleven times, in 1900 three times, and in 1901 nine times, three of this last set being done in this country. This year two operations have thus far been reported. This makes a total of thirty-four operations in the six years following the first attempt to treat, by a simple surgical procedure, an organ usually supposed to be particularly vulnerable,—in fact, so vulnerable that any interference, even for surgical purposes, might be followed by immediate fatal results.

There is more than enough material here for our consideration at this time, and I beg you to follow me in the necessarily brief discussion which I offer you. In order to start with some knowledge of the results of these operations, before any discussion, in general or in detail, is attempted, a short review of them will be necessary.

## REVIEW OF THESE CASES.

As regards the manner of wounding, all these cases, except two, were due to punctured or incised wounds, the two exceptions being bullet wounds. The particular injury to the heart was inflicted on the ventricles thirty-two times, the left ventricle being implicated seventeen times and the right thirteen times. In two cases only were auricles opened, once the right and once the left, and there are three cases in which my information is incomplete. In most of the cases where details are given the pleura is reported wounded, and usually there was a hemothorax, the collection representing, in large part, the overflow from the pericardium.

The practical questions which usually come to the mind of a surgeon in planning an operation to meet these conditions relate to the method of exposure of the heart, the detail of the treatment of its particular condition, and the method of closing and dressing the wound of the operation.

In the cases reported the heart was reached variously, depending on the location of the original wound in the skin and the choice of the operator, but either a flap of all of the tissues of the thoracic wall was turned up or a resection of two or more ribs was practised. The particular detail is of no great moment provided that the heart is properly exposed. The special method of treating the heart wound is of interest, for it involves the choice of suture material for a novel situation, the time at which the suture is introduced and tied with reference to the heart beat, and the

<sup>1</sup> Oration on Surgery delivered before the Fifty-third Annual Meeting of the American Medical Association at Saratoga Springs, N. Y., June 10-13, 1902.

depth of the stitch in the heart muscle. In our cases three operators are recorded as having used catgut, — Fontan of Paris, Marion and Launay; in all other instances where the suture material was specified silk was used, and in most cases the sutures were interrupted, though in a small number a continuous suture was practised. It is of interest to note that these operators particularly avoided including the endocardium in the suture. One of them definitely reports introducing and tying the suture during diastole.

As regards the closure of the wounds: the tissues involved in the flaps or incisions were, of course, replaced; in seven instances drainage of the pericardium and pleura was practised and in four the pleura alone was drained. The other cases are said plainly to have been closed without drainage, or nothing is said of the matter at all.

#### RESULTS OF THESE CASES.

Now, of the total number of these cases five died on the operating table, of hemorrhage, and ten died very soon afterwards of the effects of hemorrhage or the shock of the operation; so that nearly half of the cases that survived the injury long enough to be subjected to operation died during or very shortly after that operation. The other group, nineteen in number, had various fortunes, but thirteen of them recovered and only six died. I think it is fair to stop a moment and consider these facts. Surely the fifteen who died of hemorrhage or shock with operation would probably have died of hemorrhage exactly the same without operation. No fatal traumatism is inflicted by exposing the heart; and stopping the hemorrhage from an incised or punctured wound in the ventricles is a simple matter when the heart is once exposed; indeed, pressure with the finger or a tampon will stop it temporarily. At all events the operation and suture did not add materially to the amount of blood lost and so cannot be counted as having hastened the death from hemorrhage, and the average amount of shock I cannot estimate. But I believe that it is fair to say that these patients had, from the first, practically no chance to recover, and that, if this had been known, the operations need not have been done — but I say this with full appreciation of the fact that the inevitable fatality could not have been definitely predicated in any case. Of the other nineteen, the comment is, plainly, that they had a chance to recover. In each of them the suture of the heart was a successful procedure; in not one instance was the fatal outcome due to a secondary hemorrhage. The six who died succumbed to the common matter of an infection, sequent to wound and operation. Of the thirteen who recovered four did so in spite of a concurrent infection. But the point is that of these thirty-four cases fifteen had, really, but very slight expectation of benefit from the operation and died, probably, neither in spite of it nor because of it — nineteen had expectation of recovery from operation, and in thirteen that expectation was realized.

I do not wish you to think that I am trying to make these cases give a better percentage of recoveries than they really do. That percentage, as the whole list stands now, is about one-third. But if we wish to consider only the final success or failure of the suture of the heart muscle we must limit our inquiry to the cases in which this procedure was really tested, and then we see that the percentage of recoveries may be considered a little more than two-thirds.

#### SLOW ADVANCE IN HEART SURGERY.

The road to the heart is only 2 or 3 cm. in a direct line, but it has taken surgery nearly 2,400 years to travel it, for I take it that the operation of opening the chest for an empyema, which was known to Hippocrates, was a direct predecessor of the attempt to treat other thoracic viscera. It does not need to be said that during most of this time surgery stood still and that the advances were little by little. We all know that before the antiseptic and aseptic eras pleurotomy for empyema gave very terrible results, and there could be but scant encouragement to draw surgeons to fresh fields. However, more than a century ago (1798) Desault, with the logic and precision which still characterizes the French school, laid down the rules for opening the pericardium for an empyema situated in that sac, and anticipated much of the technique of today, and it took surgery ninety-eight years to pass from the pericardium to the epicardium, across a space that is such only potentially.

It is a little odd that surgeons have hesitated so long to go to the aid of the wounded heart in man. Physiologists for years have experimented on the hearts of animals selected from nearly all the species of the animal kingdom. The special references to this matter are not needed here, but it is germane to the subject to note that the tolerance of the mammalian heart for manipulation, and its persistence of action in spite of wounds and obstacles, have long been known.

The experience of the various operators has been, as might therefore have been expected, that the heart of man was no more resentful of intervention than were the hearts of other mammals, and that it not only could be handled, and even partially lifted from the pericardium, but that its muscle could be sutured so as to close a wound, just as can be done with the skeletal muscles. However, in the case of the systemic muscles rest can usually be enforced, either completely or partially, during the process of healing, but this can not be done with the heart. Here comes the great difference between the heart muscle and the skeletal muscles, both as regards suture and the reparative process, the heart must continue to act for the whole of the time.

The question now centres, first, on the possibility of properly suturing, that is, placing a practical suture in the moving heart, and, second, on the result of the healing process. The first question is one of only technical moment, for the work on animals has shown that it can be done,

and the experience of those who have sutured the human heart has not disclosed any special difficulty in the procedure, but the matter and manner of the sutures are debatable. The general advice is that the sutures of muscle should be of silk, and it has been most frequently used in the heart muscle, but three of the successful cases, the two of Fontan's and the one of Launay's, were sutured with catgut. Elsberg has advised, as the result of his experiments on rabbits and dogs, that the suture material should be silk, and that the suture be an interrupted one, and very superficially placed, believing that deep sutures will tear out, while superficial ones will hold. He also advises that the suture be placed and tied during the diastole of the heart.

#### EXPERIMENTAL RESEARCH.

To discover, if I might, the exact value of these somewhat confused matters, I have, under anaesthetics, exposed the hearts in eleven dogs, and made wounds of various sizes and in different directions in the left ventricle, limiting myself to that particular cavity, as it was the one most frequently wounded. In each instance, except perhaps one, I verified the opening of the cavity of the ventricle by passing an instrument into it so as to get a free spurt of blood during one or two systoles. It was found that this verification was a practical necessity, for the non-penetrating wound of the myocardium will give forth, during systole, a spurt so large that it could easily be confused with one from the cavity of the ventricle. These wounds were then sewed with ordinary commercial cumolized catgut; in some deep and superficial stitches were combined; in some very deep, so as to surely penetrate the endocardium, were used, and in others very superficial stitches; and the variations of interrupted, continuous and recurrent continuous were practised.

In the earliest operations toothed thumb forceps were used to pick up a few muscular fibres to steady the organ for the making of the incision and placing the sutures. At the first pinch the heart, of course, delayed systole and then began to beat rapidly and violently and continued this as long as the forceps were in place. It was exactly as if the heart were surprised and at first checked by the intrusion of the forceps teeth, and then recovered to make violent and strenuous efforts to escape from the grip, and if the forceps' hold was continued it usually succeeded in this by the tearing of the fibres. One of my dogs died on the table from hemorrhage due to the tearing of the muscle in the bite of the forceps and my inability to at first catch the edge of the open wound in the bottom of a pericardium overflowing with blood, and although I did finally succeed in getting in two sutures, they were placed too late.

#### A METHOD TO HOLD THE HEART DURING SUTURE.

To overcome this difficulty with the forceps I put into the heart, before incising it, two long suspension loops of silk, dipping the needle carry-

ing them deep into the ventricular wall. These gave complete control of the organ, for they did not tear out, and even though the heart was hanging from them its function continued, and much less tumultuously than it did in the bite of the forceps; and with them the heart could be lifted quite halfway out of the pericardial incision, or it could be swung to one side or the other, or rolled over in either direction, its range of motion being limited only by the great vessels at the base.

I placed these loops side by side and about a centimetre apart, and could then incise between them, hold the wound open, by traction on the loops, to verify penetration and then, crossing the loops, could absolutely stop bleeding and steady the heart, for under this control the point of the incision seemed to be the starting point of the systolic waves.

#### DIASTOLIC SUTURE UNNECESSARY.

Now, even with the incision coapted and held relatively motionless by the crossed and taut suspension loops,—so that the placing of a suture was no more difficult than in an indifferent tissue,—I found it impracticable, yes, impossible, to make a diastolic thrust of the needle, to pull the suture into place in the succeeding diastole, and to tie the knots in the ones following. To do this would require a man to work with accuracy, and yet with perfectly timed breaks in his work, in various fractions of successive seconds—for these hearts are always beating more than one hundred times to the minute. And the impossibility which I encountered has made it very difficult for me to believe that anyone, even if he has attempted it, has ever really done it. Nor can I see what is gained by it.

The heart does not bleed in diastole, it bleeds in systole, and the suture must be tied to be efficient at that time, and the way to do it is to tie quietly and firmly, during the rapid beating of the heart, and to take no account of split second diastoles, but watch the knots as one should watch the knots of the ligature in a major vessel. And the same judgment which controls the tension of the suture should control the depth to which it reaches. I cannot agree, from what I have seen of the actual working of the matter, that a superficial suture will hold where a deep one will tear out. One is suturing the myocardium, not the epicardium. Of course, it is inadvisable to penetrate the endocardium, but it is at the same time, and fortunately, a difficult thing to do. I did it once because I intended to do it, and I had to take a larger needle than I had ordinarily worked with, and definitely carry it through the heart wall and return; and from this I learned that, with the medium-sized, full-curved needle which one would commonly use, the penetration of the left ventricle is not to be feared.

On this point it only remains to be said that, in the case in which the endocardium was included in the stitch, the strand of suture stretched across the cavity of the ventricle was the occasion of the formation of a little globular clot, which was



found at the autopsy to be firm and white, and surrounded by a large post-mortem clot.

Elsberg's very complete studies of the healing process showed that the muscular fibres in the bight of the suture atrophy and are replaced by fibrous tissue, and he points out that, very evidently, there would be less of this lower grade tissue in the case of an interrupted suture; but, so far as I have been able to judge, the difference amounts to very little practically, and the saving of time in the continuous over the interrupted suture is manifest, and it is the method finally advised by Terrier and Reymond a year ago. I had thought that the lessening of the number of knots on the epicardial surface by the use of the continuous suture might be a special point in its favor, but the matter seems to be unimportant, for all knots quickly sink into the tissues, leaving a flush surface which is covered with fibrin.

#### CAUSES OF DEATH.

For my experiments I have used dogs,—primarily because of the size of the heart in the larger dog,—and I had the same difficulty that other experimenters have had with the animal, for there is no mediastinum, the whole thorax being lined by one continuous membrane, and as soon as this is opened both lungs collapse, so that artificial respiration by bellows is needed. There are two important points in connection with this fact: a very large serous surface is exposed to the air and to infection, and it is practically impossible to avoid leaving a certain degree of pneumothorax when the chest is closed. Collateral traumatism and infection, then, led to the early death of most of the dogs; indeed, only two lived ten days, and then both died of empyema and pyopericardium. This makes it impossible for me to speak as confidently regarding the catgut suture as I should like, for *a priori* I should prefer in this place the absorbable suture, because a stitch once in is there to stay, and the opportunity of going back and removing it, if its presence is resented by the tissues, cannot be looked for. Still it is to be noted that one operator, Fontan of Paris, has the distinction of having twice sutured the heart with the recovery of both patients, and Launay has successfully closed two wounds in one heart, the suture material in all three cases having been catgut, and on the other hand, Nietert of St. Louis, has also two successful heart sutures to his credit, his suture material being silk. Still, if it can be shown that the healing process takes place to a practical extent during the persistence of the catgut, it will be reasonable to argue that no great objection can lie against the absorbable suture. In Elsberg's paper he asserts that reparative processes are in train in twenty-four hours, in forty-eight hours there is a dense round-cell infiltration, by the fourth day spindle cells appear, by the seventh day they replace the degenerated muscle fibre, and by the tenth day the granulation tissue is becoming fibrous tissue. He reports several rabbits killed on the fourteenth day with the heart wound in the heart firmly healed, and in one in-

stance a rabbit dead of sepsis had a firmly closed heart wound on the eighth day. In two of my dogs, both dead of sepsis on the tenth day, the heart wounds were firmly closed, with no evidence of leakage or hemorrhage, although in one the infective process had attacked the epicardium and penetrated the myocardium. It does not need to be said that these dogs count for very little; but the inference is simple, from the whole evidence, that wounds of the heart muscle heal very rapidly and that the process may be practically completed quite within the life of a catgut suture. And the evidence of Fontan's two patients, one of whom was infected, and Launay's case of two wounds in one heart, is on the same side, and I shall therefore assume that catgut is, at least, a permissible suture material.

#### SUCCESS OF THE CLOSURE OF HEART WOUND.

Finally it has to be said that in my dogs these sutures, however placed or tied, always controlled the hemorrhage and closed the opening, and that the healing processes, as they were studied, followed a course practically similar to that in Elsberg's experiments on rabbits, up to the death of my animals. They show that the repair in heart muscle is in no way different from the repair in skeletal muscles, and that it is no more interfered with by the action of the heart than are the nutritive processes of the organ.

I do not know of any of the successful cases of heart suture in man having died later, but there is reference to a case of Izzi's in which the heart was wounded but not sutured, and the man recovered, but on the twenty-eighth day, having left the hospital, he made considerable effort to lift a weight and had rupture of the cicatrix in the heart wall and sudden death. Of course, the wound in this heart had been filled by a coagulum, and in the process of healing this was organized or replaced by cicatricial tissue, and there never had been the proper coaptation of the heart muscle in the edges of the cut.

So far as the heart itself is concerned the proposition for its suture, in case of wound, is properly established; and if it were a superficial organ and easy of access, and if the path by which it is reached could easily be closed again, the whole matter would be eminently simple. The operation would be more frequently done, for the occasions demanding it would more frequently arise, and the whole technique would be quickly worked out in detail. But the heart, while it is close to the surface of the body at one point, is not a superficial organ, and to reach it the bony and muscular chest wall has to be traversed—a matter of no special import—and two serous sacs have to be invaded. Herein lies the great difficulty.

#### INTERFERENCE OF THE PLEURA.

It is true that in a dissection the pericardium can usually be reached without a wound of the left pleura, but it can only be done by taking the pleura definitely into account. The anterior limits of the sac are very various, and in the

dissecting room it has been found to extend across behind the sternum almost to the right border of the bone. Commonly, it overlaps and lies just internal to the left border of the sternum as far down as the fourth cartilage, and from this point gradually passes downwards and outwards, crossing the sternal end of the fifth cartilage and just internal to the middle at the sixth. A wound, therefore, to reach the pericardium and heart without injuring the pleura, would have to be placed in the sixth interspace and close to the sternal edge, and be directed almost exactly backwards. This place is so small that practically it is never found, and it is necessary to consider that all wounds which penetrate the pericardium have traversed the pleura, and it is across the same tissue and sac that the surgeon must pass who attempts to repair the wound. There is another point to be considered here. The opening of a serous sac, either accidentally or surgically, exposes it to infection, and the serous membrane, by a power inherent in it, deals with such infection as occurs unless the latter overwhelms it. The question has been thoroughly studied by all, in its relation to the peritoneum, but I wish merely to refer to the fact that the peritoneum offers opportunities for the localization of an infection which cannot otherwise be disposed of, and that intestinal rest may contribute greatly to this localization. Both the pleura and pericardium differ from the peritoneum in this respect—the surfaces of neither offer pockets or recesses in which an infection may be confined, and constant motion incident to breathing and the heart beat, tends to disseminate pathogens and to quickly distribute them over the whole surface of the sac.

So far as the arrangement of the lymphatics of the pleura is concerned, its power of absorption should be greater than that of the peritoneum, and in certain cases of infection, as in the empyema of pneumonia, it does show considerable ability to deal with the condition; but in view of the great frequency of infection of the left pleura in connection with heart wounds, I am obliged to believe that the inability to obtain surgical rest for the tissue is a prominent factor in producing and perpetuating the condition.

In writing on wounds of the pleura and lung, Terrier and Raymond claim that infection of the pleura is not likely to occur unless there is a coincident wound of the lung. They argue that the infection probably comes from a bronchus, and base the treatment necessary for a traumatic hemothorax on the presence or absence of hemoptysis. In no one of the clinical histories of these heart wounds which I have seen is there mention of hemoptysis, but they nearly all had hemothorax, large quantities of blood being in the pleura, and a large percentage had a subsequent infection.

#### SEPSIS AND DRAINAGE.

Of the thirty-four cases, nineteen lived long enough for the development of an infection, and

in ten it developed, and of these six died, showing that infection so affects prognosis in these cases that a man infected has not so much as half a chance to recover; or, to put it differently, more than half of the cases were infected, and of these more than half died. It is of particular interest to know the time of the implantation of the infection, and I have found records of nine other cases of wounds of the pericardium and heart which were not submitted to any primary operation, and of these three had local infection, and one had primary local healing, but died of a peritonitis. The number of cases is very small, but so far as they go they show that about one-third of them are infected by the wounding instrument, and that primary operation increases the chance of an infection to more than half; this, however, must not be taken as counting against the doing of the operation, for its object is to control conditions which lead to certain death, and even with an infection recovery is not impossible. The knowledge of the great likelihood of an infection at the time of the receipt of the wound must be made use of, and one must consider if such a wound is not to be treated as one already infected. If this is done some method of drainage will be employed, and the detail of its arrangement is complicated by this fact, that one serous sac, the pericardium, must be drained across or through another, the pleura. The advice is given, probably in view of this difficulty, that both pericardium and pleura be closed without drainage, but some operators have drained and their results merit consideration. So far as I can learn, eleven of the thirty-four cases had primary drainage arranged, four for the pleura alone, and seven for the pleura and pericardium. Of the eleven seven recovered though two had infection. Of the four who died, two died of sepsis, and two of collapse before the possibility of knowing if sepsis was to develop or not, and if we exclude these last two we have nine cases drained and seven recovering.

Now, on the other side, there were nine cases that had no primary drain, and did have infection, and of these five recovered. The number of cases is small, seven out of nine and five out of nine, but in these cases, as in many, many others, a hair, perhaps, divides the chances of success from those of failure, and where we have only small statistics at hand, it is with those that we must work, and on them base our future actions.

In the drainage of the pericardium there is a point worth mentioning. The material should, of course, be gauze. It may be put in a small space left unclosed at the lowest point of the wound (Mignon et Sieur) and it does not need to go deeply into the sac, for with the patient supine or reclining the heart will sink in any effused fluid towards the dorsal side of the sac, displacing the fluid towards the ventral side, where a drain may easily reach it; but the fluid must pass upwards from the pericardium towards the skin opening, and this is, of course, a disad-

vantage. For the pleura a drain may be arranged to make its exit by the same opening as that for the pericardium or, and this seems the wiser plan, it may have an independent opening near the posterior axillary line, where it will be of most service if empyema does develop, and may, in such a case, obviate the need of a secondary thoracotomy. Of course, if no sepsis supervene, all drains should be very shortly removed.

#### OTHER POINTS TO CONSIDER.

In the time allotted this paper on the program of the association it has only been possible to discuss the two technical points of suture and drainage, and the matter of the symptoms and the anatomic details of the wounds which have been put on record have, in spite of their importance, been passed by. Very briefly, the symptoms may be listed as consisting of the external wound in the precordial region, the general evidences of hemorrhage, the disturbance of the heart function sequent to the trauma and the acute anemia, and the local signs of the filling of the pericardium and, secondarily and in most cases, the pleura. As regards the wound itself, I believe, from examining the hearts which I have punctured and incised, that the endocardial wound is always smaller than the epicardial wound, excepting, I should imagine, in the bullet wound cases. This difference in the size of the wound at its two limits will explain the living of some with apparently large wounds but from which the amount of bleeding has not been commensurate with the size of the visible wound. It is necessary only to revert to the fact that the different parts of the heart behave somewhat differently when wounded. The thicker wall of the left ventricle offers a greater obstacle to hemorrhage and a better opportunity for suture than any other part; wounds of the right ventricle bleed more and are more difficult to suture, and the thin-walled auricles are saved from a lethal hemorrhage when they are wounded, by the comparatively low pressure of the blood in them, while in their loose structure a practical suture is a difficult thing.

#### CONCLUSIONS.

The operations which have been recorded mark only the beginning; the heart is now destined to be submitted to many manipulations provided they may be done without stopping its action at once. It is a very unsafe thing to prophesy, but that more will be attempted can easily be inferred, for interference with the mitral orifice has already been suggested, and the immediate neighborhood of the heart has been invaded and a sacculated aneurysm of the aorta has been tied off, the success of this well-executed manœuvre being prevented only by the failure of the atheromatous vessel walls to heal. Possibly the next step may be delayed as long as the application to the heart of common surgical methods was delayed after Desault had taught us to open the pericardium. Perhaps it may come soon. It is

not impossible that a new surgical technique may have to be created, but it is most probable that the next step will be based on the new application of the very old matters of the suture and drainage.<sup>2</sup>

### Original Articles.

#### THE NECESSITY FOR AN ELECTIVE SYSTEM IN A SCHOOL OF MEDICINE AND ITS DISADVANTAGES.<sup>1</sup>

BY HERBERT L. BURRELL, M.D., BOSTON.

It may be taken for granted that it is open to argument whether the best result is obtained by a fixed or elective curriculum in the education of a student in medicine. I assume that all agree that there are certain fundamental studies which must be required. The number and length of time to be devoted to these studies, how far the student should be obliged to attend lectures and recitations, to do laboratory work, to attend clinics and to receive credit therefor in obtaining his degree, is a matter for difference of opinion.

The curricula of the various medical schools of the country show marked variance in the opinions held by the various faculties as to the freedom that should be given a student in electing his course in medicine, and it is with the desire of obtaining an expression of opinion from this society, that I present the subject of an elective system in schools of medicine.

That we may clearly understand one another, I will define what I believe should constitute an elective system in a school of medicine. It should allow the student, as soon as his instruction in the fundamental studies is completed, to select and elect a group or groups of studies, leading to a more or less comprehensive knowledge of special lines of work. The fundamental studies should be anatomy, including histology and embryology; physiology, including physiological chemistry; pathology, including bacteriology; medicine, surgery and obstetrics.

For example, if a student wished to become a general practitioner, having completed his required work in the fundamental studies, he would receive advanced instruction in medicine, surgery and obstetrics, and the initial knowledge of as many specialties as practicable. If he wished to become an ophthalmologist, he would elect a group of studies which would give him advanced instruction in the anatomy, physiology and pathology of the eye, besides studying ophthalmology. If he wished to become an anatomist or pathologist, he might devote the whole of his time to these special subjects. So that in the latter part of his medical school life, he would devote his time to acquiring the fundamental knowledge of his future specialty.

With required entrance examinations, and in some schools the requirement of a degree in arts,

<sup>1</sup> Read before the University of Pennsylvania Medical Society, April 18, 1902.

<sup>2</sup> Memorandum of experiments omitted.

letters or science, it is a fair presumption that the student on entering a medical school has not an untutored mind. The study of medicine gives to many men a very advanced form of liberal education. The study of life, its extraordinary adaptations, the contact with individuals, the insight that the student is given into the strength and weakness of man and woman, the adjustment of every back to its burden, all broaden his view and elevate him as a man and a citizen. With the new kind of students coming to a school, the new ends which must be fulfilled by medical men, it would seem wise to consider the revision of our system of teaching.

The student comes to a school of medicine with the intention of acquiring the knowledge which shall enable him to carry out his life work, which should be the alleviation of human suffering, the saving of human life, the contributing to the knowledge of medicine and the securing for himself and family a livelihood, an education for his children, and a competency for his later years. He has finished his collegiate education and is now engaged in his life work. He is twenty-two or twenty-three years of age, and is anxious to obtain the knowledge that will enable him to practise his profession as soon as possible. Life is now very real to him. He is filled with energy, and in the vigor of young manhood no task set before him seems insurmountable; and yet the curricula of practically all the schools in this country are arranged so that he shall work nine months in the year and have three months' vacation. This in itself is not time-conserving nor practical for young men. It is a matter that should receive the most careful consideration of the faculties of medical schools. The University of Chicago has recognized this inconsistency, and has provided four semesters by which the student can pursue his studies practically continuously if he so elects.

The so-called fundamental studies of anatomy, histology, physiology, physiological chemistry, pathology and bacteriology, it is generally accepted should be required, but the scientific men question at times the wisdom of including medicine, surgery and obstetrics. I believe that it is vital to the proper development of a scientific man that he should be well grounded in all three of the latter fundamental studies. For whether the student is to be a practitioner or a scientific man, he must build his superstructure on all of these foundations in order that his knowledge shall be comprehensive and his productiveness of full value to the knowledge of medicine. The proportion that all these studies should hold to the remainder of the course of medical instruction is open to question.

An extraordinary degree of activity has existed in laboratories during the past ten or fifteen years. A wealth of information has been contributed by them to the general knowledge of medicine. Efficient laboratories have been established for these special workers in medicine. I firmly believe that we are in great danger of

overestimating the amount of time that a student should devote to these laboratory fundamental studies.

It is perfectly true that the training which the student receives in methods of scientific work while in these laboratories is frequently of inestimable value to him in his future work, but all graduates of colleges should have received at least part of this drill in work long before they come to a technical school, for as such I regard a school of medicine.

A just proportion should be maintained between the value of the method of work and the value of the knowledge obtained in a fundamental study. This is frequently lost sight of, and the amount of time given to an individual foundation is excessive when it is considered what a mass of knowledge must be obtained by a well-equipped, well-informed physician. Progress is made in medicine as in every other subject by pendulum-like movements, and the pendulum of advance has swung well over to the laboratory side of medicine. Be it understood that I definitely and clearly believe that great advances are to be made in medicine through laboratories.

The so-called clinical subjects have been rather standing aside and have been hesitating as to the line of progress that they would take. They are waiting and listening with the closest attention to the knowledge that comes from laboratories, and have been, if I may so put it, rather overawed by the progress and by the facts that have come from laboratories. I believe myself that the clinical branches must advance along the lines of scientific work and must not wait for knowledge to come entirely from the laboratory. After all, the greatest laboratories for the observation of injury and disease are the wards and outpatient departments of a hospital.

The keen observation and critical analysis of our predecessors, many of whom did not have the advantages of a large clinic, led to the recognition of a vast number of facts and the adoption of many life-protecting and saving measures. It is incumbent upon the clinician to again take up the work and to fill the positions held by such men as Sydenham, Louis, Jacob Bigelow, Hebra and a score of others.

With the increase of knowledge from laboratories let there be renewed activity among clinicians, let laboratory men and clinicians each respect the other and, working co-operatively, solve some of the vast number of the riddles of disease.

The sum of medical knowledge today is so great that it is not within the grasp of a human mind. For this reason, it is necessary that there should be some election in schools of medicine. The student mind and the public demand to-day special, complete knowledge on individual subjects. Object as we may that specialization is narrowing, that it tends to destroy the ability to grasp the whole of a situation, that it has abolished the well-informed general practitioner, the demand exists and is imperative — special knowl-

edge on special subjects founded on broad general knowledge.

Granting that this is true, how best in a four-years' course can we give to the student that grounding which shall enable him in after years to develop in the best manner in whatever path he elects? That one can become in a four- or a five-year course an expert anatomist, pathologist or physiologist is impossible. That one should acquire the foundations and a fairly complete introduction to a chosen specialty is or should be possible. Let it be clearly understood that I do not believe it is possible nor desirable to make a specialist in a four-years' course of medical instruction. I do believe that it is possible to allow the student to elect at some appropriate time the course that he intends to pursue for his life work.

To go on with the necessities of an eclectic system, they may be enumerated as follows: (1) The mass of knowledge which now exists in medicine is so great that it cannot be mastered by a single mind. (2) The needs of medicine and the public demand that specially informed men shall represent the highest knowledge in selected subjects. (3) The different capacities of individual students and their different methods of work make it expedient to allow them freedom of action in their methods of acquiring knowledge. (4) The advantage of having men elect an individual subject in which they are keenly interested is very great. Nothing can be more unsatisfactory to both teacher and student than to have to demand that a student shall acquire knowledge on a subject for which he cares nothing, particularly if the student is convinced that his time had better be spent on some subject in which he is interested. It is entirely human not to want to do the thing one is obliged to do, but if one elects to do a task it is at once converted from a burden to a pleasure. (5) Elective courses, if established, could be given by a number of instructors, not alone by the professors in the department, but by the assistants as well, in order that the student should have the opportunity to obtain knowledge in a manner fitted to him. An elective system of instruction conducted on this principle would quickly determine the value of a method of teaching and the success of the instructor. (6) But the greatest of all advantages, to my mind, is the freedom it would give to the individual student and to his instructor. The poor pedagogue who is obliged to teach again and again the principles only of a subject, and never take the student's mind beyond them, is apt to regard life from the standpoint of Mr. Mantalini, "as one demnition grind." But if he may carry a selected number of pupils as far as they desire and are capable of going in a given subject, a keen and rare pleasure comes to him as he watches their mental development. Nothing that I have ever been brought in contact with is more inspiring to the personal development of an instructor than a group of selected students who are full of sensible interrogatories and who are

desirous of obtaining all the knowledge that exists in reference to an individual subject. It is a stupid teacher who is not given food for thought and new ideas by such a group of students. The freedom of the student is of inestimable value. The assumption that a young man does not know what he wants to do in this world is not supported by evidence. That he is always wise in his selection no one presumes to say, but that it is best that he should have the right to pursue the lines of development as he wishes, it seems to me, is true, with this one qualification: No young student mind should be allowed to elect his line of development without previously having an insistent demand made that he should have the foundations of the subject. It would be absurd that a student in medicine should elect hygiene without a competent knowledge of advanced chemistry, but that he should be obliged to receive advanced instruction in anatomy is, to my mind, equally absurd.

There are many disadvantages in an elective system, and among them are: (1) The difficulty of deciding what is absolutely necessary to form the foundation of a knowledge of medicine. (2) The loss that would occur to the student from a broad general medical education is very considerable, for there is hardly one of us but values the complimentary knowledge that we obtained in our early medical life by working along general lines. (3) The inability on the part of the teaching body to know exactly what information the student has acquired. This difficulty, of course, could be met by an efficient system of examinations, which, I grant you, would be time-consuming and very expensive. (4) The desire of a minimum number of students to be led to have their knowledge tested from time to time, to receive the encouragement of step-by-step success and to appreciate that they are making progress. (5) One of the most pertinent objections to an elective system would be the whims of a student body. Given an uninteresting though very important subject, well presented by the instructor, with a stiff examination at the end, the chances are that the student body will object and will shun the instructor and his course. (6) The early specialization of a student who really does not know exactly what he wants to do. The exactness and glamor of surgery, for example, frequently attracts students who find, poor souls! that, after all they have done in equipping themselves to be surgeons, an opening in medicine presents itself which is, after all, the feasible, practical thing for them to do as a life work. This failure, however, to arrive at one's desired goal is a constant incident in man's work, and should not deter a faculty from giving to the best students the opportunity to elect.

There should be provided in an elective curriculum a group of studies to be continued until the end of the course for those who, for various reasons, cannot determine, or do not care to decide, what special line of work they will pursue in medicine. This group of a general curriculum

will be adopted by the mean of students as the safe course and will serve to give these men a safe and broad foundation for specialization. It is often said that a curriculum should be arranged for the average student, that the brightest students will take care of themselves. True! but why not stimulate students and teachers by giving to those who elect advanced knowledge along chosen lines?

I take it, that you will grant me that the elective system is desirable at some period in the education of a medical man. Many will insist that no specialization should exist until after the student has graduated. My answer to this is that, "by hook or by crook," the majority of the best students who graduate from medical colleges to-day elect that they will devote more time to one given subject than to another. This demand exists. It is a condition which is present. Why not meet it and adjust our curriculum accordingly? After all, what, as teachers of medicine, we desire to do is to see that a medical graduate shall have a safe and competent knowledge of the science and practice of medicine; and beyond that we should insist that the best students shall have the facility, when they possess the ability, to go as far as they may along their chosen line of selection.

How can this be obtained? I believe by a minimum required curriculum—minimum in the number of subjects to be taught the students and minimum in the number of hours to be devoted to the subject. The minimum number of subjects should be anatomy, physiology, pathology, medicine, surgery, obstetrics and, possibly, hygiene. The number of hours that should be devoted to these subjects should be reduced to the absolute minimum which would be necessary to give the knowledge that every well-educated medical man should possess as a foundation.

An impartial board of three members of a faculty could determine the amount of time to be occupied by these fundamental studies. The head of the department of these fundamental studies is too apt to exaggerate the importance of his individual department.

A very thorough system of examinations should be adopted for these required fundamental studies. A written examination at the end of the course is entirely inadequate; it should be supplemented by recitations, laboratory work and tests applied to bring out the student's power to do rather than to simply memorize.

Students who demonstrate at the end of a year their incompetency should be given another trial, and if they fail should be dismissed from the school. The system which obtains in some schools of allowing men to come up year after year for their examinations and to finally, by a chance, squeeze through is not right. It allows men to eventually secure a degree for which they are entirely unfitted. No student should be allowed to fail in an individual subject more than three times without having his case taken under advisement, and if he should then be found un-

fitted to continue he should be dismissed from the school.

That special knowledge should be required in such subjects as surgical pathology, therapeutics, orthopedics, genito-urinary surgery, syphilis, bacteriology, medical chemistry, histology, embryology, legal medicine, ophthalmology, otology, laryngology, gynecology, neurology, military medicine, dermatology and pediatrics is open to question. If required, it should certainly be the minimum and not the maximum, as it is in many instances at present.

In conclusion, the elective system is now in use in schools of medicine by the best students. It is a legitimate demand on their part, and it should be met by the teachers of medicine. It can best be obtained by insisting upon a minimum required curriculum on the subjects which teach the knowledge, and those alone that should be possessed by every well-grounded medical man.

If, in presenting this subject to the University of Pennsylvania Medical Society, I have succeeded in stimulating thought, I shall be deeply gratified.

#### REPORT OF A CASE OF CHRONIC, CONTINUOUS HYPERSECRETION WITH HYPERCHLORHYDRIA (REICHMANN'S DISEASE), WITH ESPECIAL REFERENCE TO TREATMENT.<sup>1</sup>

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THAT the class of case here presented is rare, that it is new to many physicians, and that it is of interest to those concerned with the treatment of gastric diseases, are deemed sufficient reasons for the following report. The patient was kindly referred by Dr. E. O. Otis:

Mr. J. C., Exeter, N. H., age thirty, married, born in England. For the past nine years he has been employed in a shoe factory in this country; previously he worked on a farm, and for a short time in an iron foundry in England. He says his mother always had a stomach trouble. Excepting the present affection he has had no illness since childhood. His present trouble began fifteen years ago when he was fifteen years old. The onset was gradual and he can attribute no cause.

The chief subjective symptom is pain in the epigastrium, localized to an area of about four inches in circumference, it is sharp in character, often causing him to "double up." It usually occurs two to three hours after meals and frequently awakens him at night; its duration is several hours. It is relieved by eating. Starchy foods, he believes, are more liable to excite it than proteids. On account of this pain he estimates that he has been obliged to lose two to three months' work each year. He states that he has never been free from the pain for three consecutive weeks during the past fifteen years except when he came to this country. During his ocean voyage he was able to retain but very little food, but he was free from the pain and enjoyed this immunity for three months after his arrival, when it again returned with its former severity. This incident is mentioned, not only as a point of history, but also as having some possible therapeutic significance. Although he has consulted many physicians (fourteen,

<sup>1</sup> Read before the Clinical Section of the Suffolk District Medical Society, Feb. 19, 1902.



he says) he has found no remedy that would afford greater relief than hot milk and soda and this has been but temporary. Marked tenderness in the epigastrium accompanies the pain and persists for a time after the pain has ceased. The appetite, though variable, is usually good, fear of the ensuing pain has at times caused him to omit some of his regular meals. There has been no excessive thirst. Eructations of an odorless gas often occur at the time of the pain and give some relief; there has never been much pyrosis. There has been no nausea, and no vomiting except one attack several years ago, but he feels at times as if vomiting would afford relief from the pain. The bowels have been constipated for years, and there has been some flatulence. Hematemesis has never occurred, nor has melena been observed. The patient uses neither alcoholic liquors nor tobacco. He drinks one cup of coffee and one or two cups of tea a day.

Examination on Jan. 17, 1901. The patient has a sandy complexion, the facial expression is somewhat serious and sad, the temperament is judged mildly nervous. The present weight is about 145 lbs.; formerly he weighed about 160. The tongue is thinly coated, the teeth are in good condition, the breath is not offensive. The heart, lungs and urine are negative. The liver, spleen and kidneys are not palpable. Palpation shows marked tenderness in the epigastrium, even gentle percussion causes the patient to flinch. Succussion sounds are elicited although the patient has fasted 19 hours. There is no tumor. The contents from a test meal at this time amount to 400 cc., strongly acid in odor. A large amount of free HCl is present. Through an accident no quantitative tests are made. Lavage is done and the stomach inflated. By percussion the greater curvature is found to be 1 inch below the navel in the median line. The lowest zone of resonance follows the ninth rib to the midaxillary line and upwards to the sixth rib. The stomach with but little discomfort contains 1,800 cc. fluid. A. S. & B. pills only are prescribed at this visit.

Jan. 23. Patient's expression is cheerful. The pain is diminished in frequency and severity, the tenderness is also lessened. Breakfast at 7 A.M., oatmeal, milk and coffee. The contents from a test meal about seven hours later, without previous lavage, amount to 400 cc. The only solid constituents are swollen particles of the oatmeal eaten at breakfast. Free HCl, 2.2 per M.; total HCl, 2.7 per M.; total acidity, 77 per C. Albumose peptone, rennet and pepsin are present. Lavage is done as at each future visit. A nitrogenous diet was ordered, all condiments curtailed; also antacid tablets, one and one-half hours after each meal, to be repeated every thirty minutes until four tablets are taken, or, if pain is present, until it ceases. (The tablets used are composed of calcium carbonate, 3 1-2 gr.; magnesium carbonate, 2 1-2 gr.; sodium chloride, 1 gr. The total of 7 gr. is equivalent in alkalizing power to sodium bicarbonate, 10 gr.)

Jan. 29. Patient has had three attacks of "gnawing" at stomach, but no real pain since last visit. The epigastric tenderness has practically disappeared. The appetite is increased. Milk, 500 cc. with 30 cc. of lime water is ordered to be taken between meals.

Feb. 11. There has been but two slight attacks of pain during the past thirteen days. Breakfast, milk, 400 cc. The stomach contents seven hours later amount to 200 cc. of clear consistency, without blood or mucus. Free HCl, 3 per M.; total HCl, 3.8 per M.; total acidity, 104 per C. Lavage is done and a test meal given. Contents, 135 cc.; free HCl, 1.9 per M.; total HCl, 2.5 per M.; total acidity, 78 per C.

Feb. 18. No pain since last visit. Patient has gained 3 lbs. in weight. Many fat globules are noticed in the fasting contents today. They probably came from the butter eaten at breakfast. It is deemed advisable to limit the amount in the future to a minimum.

Feb. 27. No pain for the past fourteen days. Breakfast, 7 A.M.; steak, bread, coffee and potatoes; fasting contents seven hours later, 200 cc. Free HCl, 3.8 per M.; total HCl, 4.6 per M.; total acidity, 125 per C. Lavage is done and a test meal given. Result: Con-

tents, 150 cc.; free HCl, 3 per M.; total HCl, 3.5 per M.; total acidity, 95 per C. Note the high acidity of fasting contents after heavy breakfast.

March 9. There has been practically no pain for the past month. The patient is cheerful and much encouraged with the results of treatment. As he seems to be doing well, and as frequent visits are not convenient, it is decided that he shall do self-lavage at home on alternate days. In order to combine a laxative and antacid, artificial carlsbad salts after meals are substituted for the A. S. & B. pills and antacid tablets. The seven hour fasting contents today amount to 120 cc.; free HCl, 2.9 per M.; total HCl, 3. per M.; total acidity, 97 per C.; test-meal contents, 220 cc.; free HCl, 2.8 per M.; total HCl, 3 per M.; total acidity, 98 per C.

March 23. The pain has returned and persisted for past several days, but is less severe than formerly. The patient seems much dejected, and states that he does not care to live if he is always to have the pain. Breakfast, 7 A.M., consists of 400 cc. of milk. The fasting contents seven hours later amount to 210 cc. They contain many curds, though these had not been observed previously after a milk breakfast. The original treatment is resumed in detail, but the patient is to do lavage on alternate days. Bromide of potash, 10 gr. three times daily is prescribed. The seven-hour fasting contents are 210 cc.; free HCl, 3.2 per M.; total HCl, 3.8 per M.; total acidity, 104 per C.; test-meal contents, 180 cc.; free HCl, 2.9 per M.; total HCl, 3.2 per M.; total acidity, 97 per C.

April 5. Notwithstanding the return to former treatment the pain and tenderness have persisted since last visit. The diet is changed to peptonized milk, malted milk, soups and mashed vegetables. Self-massage of the stomach two to three hours after meals is recommended. Atropia sulphate, 1-100 gr., after meals is prescribed. Lavage is done and a test meal given. Result: Contents, 140 cc.; free HCl, 3.6 per M.; total HCl, 4 per M.; total acidity, 129 per C.

April 13. The atropia was stopped after three days' use on account of its physiological effects being produced. During its administration the pain continued the same, its effect on the secretions was not determined. Breakfast, 7 A.M., meat, toast and coffee. Fasting contents seven hours later 180 cc., 1-8 consisting of food particles. The gastralgia is present at this visit; removal of the stomach contents relieved it.

We had previously decided that if the pain had not stopped by this time, rectal feeding should be tried for a week; therefore it was begun on the afternoon of this day. Peptonized milk, 8 oz., four times a day, was given at first; on and after the third day about two quarts were consumed daily. Lavage was done daily after removal of the fasting contents.

April 14. The second day. Fasting contents, 210 cc.; free HCl, 2.1 per M.; total HCl, 2.6 per M.; total acidity, 82 per C.

April 15. Third day. Fasting contents at 1 P.M., 85 cc.; free HCl, 1.8 per M.; total HCl, 1.8 per M.; total acidity, 61 per C.

April 16. Fourth day. Fasting contents, 11 A.M., 53 cc.; free HCl, 1.8 per M.; total HCl, 1.8 per M.; total acidity, 71 per C. Patient first experiences slight hunger and thirst; he becomes quite homesick.

April 17. Fifth day. Fasting contents, 9 A.M., 175 cc.; free HCl, 2.9 per M.; total HCl, 2.9 per M.; total acidity, 94 per C. Fasting contents at 4 P.M., 100 cc. Patient is more homesick than yesterday and much worried about home affairs. We decide to send for his wife and child.

April 18. Sixth day. Fasting contents, at 9 A.M., 100 cc.; free HCl, 2.1 per M.; total HCl, 2.1 per M.; total acidity, 77 per C. Fasting contents at 4 P.M., 40 cc. Wife and child arrive this afternoon. Patient seems more cheerful. Begin bromide of potash, 30 gr., three times daily this afternoon; also lavage with silver nitrate, 1 to 1,200.

April 19. Seventh day. Fasting contents, 25 cc. Patient feeling well but quite hungry. Beef tea, 1 oz., allowed by mouth this evening.

April 20. Eighth day. Fasting contents, 11 A.M., 20 cc.; free HCl, .5 per M.; total HCl, .5 per M.; total acidity, 31 per C. Allowed beef tea, peptonized milk and toast by mouth today; rectal feeding discontinued.

April 21. Morning contents, 65 cc.; free HCl, 3.9 per M.; total HCl, 4.1 per M.; total acidity, 120 per C. Patient has had no pain since the rectal feeding was begun. He feels weak, and has evidently lost flesh. He is, of course, aware of the increase in amount of contents today, and is told that the acidity is higher. He is also told that he may expect to be free from pain a few weeks or a few months. He states that he would willingly undergo the treatment again if it would insure three months' freedom from the gastralgia. He is directed to gradually return to a mixed diet, avoiding coarse foods, all condiments, and those foods which we had found inadvisable for him to eat. He is to continue the bromide of potash, 15 gr., three times daily, the antacid tablets after meals, and to do lavage three times a week with the silver nitrate solution.

April 28. Reports that he lost 9 lbs. during the rectal feeding, has had no gastralgia, and is feeling well every day, "appetite enormous."

May 13. Condition the same as at last report.

June 13. Has discontinued the bromide of potash; also the antacid tablets. No gastralgia to date.

Sept. 14. Five months since the rectal feeding, and no gastralgia. He seems bright and cheerful, a marked contrast to his former condition. Has eaten nearly everything he desired, all kinds of fruits, vegetables, etc. Is still using silver nitrate solution. He says that he notices the fasting contents are always less after rubbing his stomach. He is not gaining in weight. At the present time he feels "nervous in his stomach," as he formerly did when the pain was coming on. Caution is advised as to diet. The fifteen-hour fasting contents are 180 cc.; free HCl, 3.2 M.; total HCl, 3.3 per M.; total acidity, 105 per C.; test-meal contents, 185 cc.; free HCl, 3.2 per M.; total acidity, 99 per C.

Nov. 28. Reports that soon after last visit he had some pain, he fasted thirty-six hours, and it left. Nov. 17 he had some tenderness in the epigastrium but no pain, which was probably prevented by daily lavage.

Jan. 30, 1902. Reports that he is well. He says: "I might say I have had practically no pain for ten months." He is still moderately constipated.

In considering cases of chronic continuous hypersecretion with hyperchlorhydria, or Reichmann's disease, it must be admitted they are rare. Reichmann<sup>2</sup> states that in years he has seen only six cases, while Boas, in his large experience, has encountered only ten. Bouveret,<sup>3</sup> Riegel<sup>4</sup> and others claim to have seen considerable numbers, but it seems possible that some of their cases were of the periodic type. Several cases of this latter type have recently been observed by the writer, one of which has been incidentally reported.<sup>5</sup> In this case a cure was apparently effected in the course of several months. Had the case been observed a shorter period, it might have been recorded as one of the chronic continuous form.

It is not within the province of this paper to discuss the etiology or pathology of this condition. Perhaps too little is known of either to warrant much being said. It, however, may not be out of place to state here that the nervous element in our case did not seem sufficient to demand more than passing notice.

The diagnosis is comparatively easy when the proper methods of examination are employed and sufficient time devoted to observation.

Periodic hypersecretion with hyperchlorhydria, stasis from any cause and ulcer of the stomach must be differentiated. That we have to deal in the case under consideration principally with a continuous hypersecretion is well shown by the results of the various examinations extending over a period of one year, while the findings during the period of rectal feeding furnish conclusive proof. The accompanying dilatation and stasis are of secondary importance, as they are probably results of the hypersecretion. Ulcer may be excluded by the absence of blood, the characteristic pain and tenderness.

In addition to the chemical findings, Boas claims we must also have the subjective symptoms: heartburn, eructations, occasional vomiting, gastralgia, increased appetite, constipation and emaciation, in order to make a diagnosis of Reichmann's disease. In our case the majority of these symptoms are present.

As to the prognosis, Einhorn<sup>6</sup> says, according to his experience, it is not bad. As a rule, most patients improve under rational treatment. Frequently, however, there are relapses. Some very obstinate cases are occasionally met with, and the trouble, although yielding somewhat to treatment, may persist for years. There is, however, no danger of a fatal issue resulting from this disease alone. Bouveret mentions tetany and ulcer as possible resulting complications. With our present knowledge of the treatment of this condition, a cure of the case under consideration does not seem probable.

On reviewing the case it is seen that for the first two months the patient was relieved of his subjective symptoms by a nitrogenous diet of five meals a day, the antacid medication and weekly lavage. A nitrogenous diet was ordered because that is the one usually employed in this condition. All condiments were prohibited, as they are supposed to excite secretion. The antacid, although continued several months, was at no time taken in the large doses recommended; it was with difficulty that the patient was induced to take twelve tablets a day, which is equivalent to bicarbonate of soda, two drams. He believes they did no good. It is also seen that accompanying a change of the antacid tablets to carlsbad salts and the beginning of lavage on alternate days, the gastralgia returned, and, notwithstanding an early resumption of the original treatment, the pain continued. It is further seen that a vegetable diet with liquids, together with the administration of atropia and bromide of potash, had no effect upon the gastralgia. The vegetable and liquid diet was tried, because some contend that it is better suited to this condition, for the reason that it is supposed to excite less secretion than the nitrogenous diet. Its use in this case produced no apparent effect. Bromide of potash seemed to have no influence on the pain, neither

<sup>1</sup> Ewald's Diseases of the Stomach, second edition, p. 506.

<sup>2</sup> Bouveret: *Maladies de L'estomac*, 1893.

<sup>3</sup> Riegel: *Deutsch. Med. Woch.*, May 23, 1892.

<sup>4</sup> See Boston Medical and Surgical Journal, Feb. 20, 1902, vol. cxlvi, No. 8, pp. 198-200.

<sup>5</sup> Einhorn: *Diseases of the Stomach*.

did the atropia. But a fair trial of the atropia was not made. The patient could not stand 1 to 3 gr. three times daily for any considerable length of time, so it was discontinued after three days; moreover, no examination of the secretions could be made; consequently, in this case, it is not known if they were effected; the pain, apparently, was not. Lavage, during the latter part of treatment, was done on alternate days by the patient. It was not until the commencement of rectal feeding that the pain again ceased.

The sickness of the sea voyage and its effect on the gastralgia suggested rectal feeding. Later, it was seen recommended by Hemmeter<sup>1</sup> in this condition; it is not, however, mentioned in several of our better works on stomach diseases. Besides the relief from pain, there are several other features connected with the procedure which seem worthy of note.

From the beginning, a diminution of the secretion and acidity is noted.

TABLE No. 1, SHOWING THE AMOUNTS OF FASTING AND TEST-MEAL CONTENTS AND ACIDITIES OF THE SAME.

Breakfast 7 A. M.	Hours Fasting.	Fasting Contents, cc.	Free HCl per M.	Total HCl per M.	Total Acidity per C.	Date.	Test-meal Contents, cc.	Free HCl per M.	Total HCl per M.	Total Acidity per C.	Period of pain.
None.	13					Jan. 17	400				Yes
Light.	7					" 23	400	2.2	2.7	77	Yes
Light.	7					" 29	350				Some
Milk, 400 cc.	7	120				Feb. 5					No
Milk, 400 cc.	7	200	3.	3.8	104	" 11	135	1.9	2.5	78	No
Heavy.	7	200	3.8	4.6	125	" 27	150	3.	3.5	95	No
Milk, 400 cc.	7	120	2.9	3.	97	Mar. 9	220	2.8	3.	93	No
Milk, 400 cc.	7	210	3.2	3.8	104	" 23	180	2.9	3.2	97	Yes
Light.	7	Lavage done				Apr. 5	140	3.6	4.	129	Yes
Heavy.	7	Lavage done				" 13	180	2.9	3.6	98	Yes
None.	16	65	3.9	4.1	120	" 21					No
None.	15	180	3.2	3.3	105	Sept. 14	185	3.2	3.4	99	No

It will be remembered that the normal amount of free HCl is about 1.5 to 2. per thousand one hour after an Ewald test meal; that the stomach contents one hour after such a meal should be less than 100 cc., and that the contents of the stomach after 10 to 12 hours fasting should not exceed 10 or 20 cc.

TABLE No. 2, SHOWING THE AMOUNTS OF SECRETION AND ACIDITIES DURING RECTAL FEEDING.

Date.	Time.	CC. Contents.	Free HCl.	Total HCl.	Total Acidity.
Apr. 14 . . . .	11 A.M.	210	2.1 per M.	2.6 per M.	82 per C.
" 15 . . . .	1 P.M.	25	1.8 " "	1.8 " "	61 " "
" 16 . . . .	11 A.M.	53	1.8 " "	1.8 " "	71 " "
" 17 . . . .	11 A.M.	175	2.9 " "	2.9 " "	94 " "
" 17 . . . .	4 P.M.	100	—	—	—
" 18 . . . .	9 A.M.	100	2.1 " "	2.1 " "	77 " "
" 18 . . . .	4 P.M.	40	—	—	—
" 19 . . . .	A.M.	25	—	—	—
" 20 . . . .	A.M.	20	.5 " "	.5 " "	31 " "
" 21 . . . .	Food by mouth today.				
	A.M.	65	3.9 per M.	4.1 per M.	120 " "

The temporary rise in the amount of secretion on the fifth day is attributed solely to homesickness; the following drop in the amount occurring after

<sup>1</sup> Hemmeter's Work on Diseases of the Stomach.

the arrival of his wife and child would tend to strengthen this conviction.

The later experience with bromide of potash and silver nitrate solutions, begun at this time, would seem to show that they had little influence in the drop which here occurred.

The early return of the hypersecretion following the resumption of food by the mouth was somewhat disappointing, and was attended by a feeling that the treatment had been in vain. Future observation, however, leads to the belief that it was beneficial, and in a similar case, under like conditions, would be tried again. The gastralgia was stopped by this treatment, and it is now prevented by lavage, attention to diet, and occasional fasts of from twenty-four to thirty hours. Consequently, as long as this treatment insures freedom from the pain, it will be continued; when it fails, rectal feeding will be resorted to again.

A study of Table No. 1 shows that the amounts of fasting and test-meal contents, also the amounts of the acidities, were much the same at the close of observation of the case as they were at the beginning. From this fact alone it would seem that the benefit which the patient has derived from treatment is not due to any alteration of the secretions, but probably to some favorable change in the gastric mucosa, whereby it has been made more tolerant of the highly acid secretions. Thus we see the object of our treatment (a cure through suppression of the secretions) has not been attained. Yet, something has been done for the patient. He has had placed in his hands the means with which he can protect himself from the intolerable gastralgia. He has been enabled to follow his occupation continuously for the past ten months, whereas previously he was losing one-sixth to one-fourth of his time. The state of dejection and despair, in which he affirmed he did not care to live if he were always to have the pain, has been replaced by one of comparative comfort and happiness.

## THE USE OF SUPRARENAL EXTRACT IN HAY FEVER.<sup>1</sup>

BY J. PAYSON CLARK, M.D., BOSTON.

It has been well said more than once that the length of the list of remedies proposed for any human ailment is a good index of our ignorance of its pathology. And there is no better illustration of the truth of this statement than the affection which we designate hay fever or vasomotor rhinitis. All that we can say of it is that it is a neurosis, manifesting itself in a hyperesthesia of the nerves supplying the nasal mucous membrane, this hyperesthesia being exhibited especially towards the pollen of certain plants, and resulting in a vasomotor paresis. We treat these cases by sending them where they may not be exposed to the pollen to which they are especially susceptible, by relieving any general dyscrasia, where

<sup>1</sup> Read before the Clinical Section of the Suffolk District Medical Society, Feb. 19, 1902.

such exists, by reducing the local irritability of the nose, removing any abnormal condition that may be found there, and by various palliatives. In the present state of our knowledge of hay fever our treatment can be little more than empirical, and therefore any new weapon for combating such an obstinate and elusive enemy to the comfort and happiness of a large number of people is very welcome.

Soon after the announcement in 1896 by W. H. Bates that the aqueous extract of the suprarenal gland was a powerful local hemostatic and astringent in the eye, investigators began experimenting with it on mucous membranes, especially of the respiratory tract. The first mention of its use in hay fever was made by S. Solis-Cohen. He found that the symptoms of hay fever from which he suffered were controlled by using a 5-gr. tablet of suprarenal substance by the mouth every two, three or four hours, according to the results obtained. He found that associated coryza or sneezing would cease within fifteen minutes after taking the tablet, and that favorable results were more marked when the drug was allowed to *dissolve on the tongue*<sup>2</sup> than when immediately swallowed. Beaman Douglass said in 1899 that he considered the dried suprarenal gland, administered internally, almost a specific for the symptoms of hay fever. He also found that a watery solution of the glycerin extract used locally as a spray was equally successful. L. S. Somers, on the other hand, speaks of the effects of internal treatment as follows: "The nasal symptoms, as sneezing, rhinorrhea and obstruction to breathing, were but slightly influenced; the sneezing attacks were apparently more infrequent, while the drug was being used, but the attack itself was as severe as before. The nasal stenosis was somewhat favorably influenced, . . . the rhinorrhea was uninfluenced in any way. Puritus of chin and buccal mucous membrane was diminished in intensity when tablets were allowed to *dissolve in the mouth*."<sup>2</sup> Asthmatic symptoms, in patients who had them, he found to be unfavorably influenced, and in five cases in which asthma had never previously existed it appeared while the drug was being used, but in a mild form. When tablets were swallowed without first dissolving on the tongue little or no appreciable results were obtained. The majority of experimenters are of the opinion that the active physiological effects are not seen when the drug is given by the mouth. Somers found that the disagreeable effects of administering the extract in full doses internally were nausea, a sense of constriction of the chest and the development of asthma or augmentation of the paroxysm when it already existed. Locally, he considers it the most satisfactory single remedy that we possess in hay fever. In a later article, Douglass adheres to his first statement. From full doses internally, patients experience sometimes a certain degree of vertigo, some nervous excitement and always an increase in the heart's action. There are no

dangerous sequelæ. Those who desire to try the remedy internally I refer to Douglass's original article for dosage, method of administration, etc. E. B. Gleason uses it both locally and internally, but he speaks more enthusiastically of the former method.

The experience of many observers now bears out Dr. Swain's conclusions, that there are no dangerous or deleterious effects to the individual from the use of the aqueous extract locally, even in very considerable amounts, and that the "local effects can be reproduced in the same individual apparently any number of times, without entailing any vicious habit either to the tissue or to the individual." The above statements are equally applicable to adrenalin chloride solutions of moderate strength (1-5000 to 1-10000) and, as far as my experience goes and that reported by other observers, the 1-1000 solution can also be used freely in the nose with impunity. N. L. Wilson, speaking of the adrenalin chloride solution, says: "For temporary relief in hay fever it has no equal and is less apt to produce irritation than the solutions of the suprarenal gland." In the discussion of the paper, from which this quotation is made, before the American Laryngological, Rhinological and Otological Society, H. H. Curtis said he had had eight or ten cases in which there had been an absolute intolerance of any of the preparations of the suprarenal gland. Others spoke of irritating effects, sneezing, etc., in some cases.

My own experience with the use of suprarenal extract in hay fever extends over the past two summers. The number of cases in which I have given it internally is too small, when taken alone, to support any positive conclusions. My results, as far as they go, agree with those of Somers in being absolutely negative, as far as any effect on the hay fever symptoms could be observed. The reason I confined myself almost entirely to the local use of this remedy was that it seemed to me the most rational one, our desire being to overcome the vasomotor paresis of the blood vessels of the turbinates and restore their tone, as well as to diminish the hyperesthesia of the nasal mucous membrane. This could apparently be more directly accomplished by a local than by an internal use. Compare in this connection the statements of Solis-Cohen and Somers in regard to the effect of allowing the substance to dissolve on the tongue. The rationale of the local application has further support in the theory sustained already by considerable physiological and clinical evidence, that the action of the suprarenal extract is directly on the muscle fibre in the walls of the blood vessels. I began by using the dessicated capsules in powder form, mixed with a little water. Later, I substituted Parke, Davis & Co.'s solution of the suprarenal extract with chlortone, and this summer I used, besides this solution, the same firm's solution of adrenalin chloride (Takamine), 1-1000, usually diluted five or ten times. In regard to the relative value of these different preparations, the dessicated gland mixed with water was found

<sup>2</sup> The italics are mine.

much inferior as a local application to either of the other two, being, as a rule, much less active and causing more often symptoms of irritation. The effect of the 1-10000 adrenalin chloride solution was, apparently, equal to that of the solution of suprarenal extract with chloretone. For sprays, the adrenalin chloride solutions are preferable.

Before applying the suprarenal a one percent solution of cocain was sprayed into the nose to prevent the irritation usually caused by the introduction of any foreign body into the nose. A pledget of cotton was then dipped into the suprarenal solution and laid against the turbinates in each nostril and allowed to remain there for several minutes. The immediate result of this treatment in the majority of cases was the relief of all local symptoms, lasting for a few hours to several days. As one would naturally expect, in cases in which some local pathological condition was present, such as polypi, hypertrophied turbinates, or septal spurs, it was necessary to relieve this condition before the effect of the suprarenal could be properly judged. In a fair number of this class of cases cessation of the hay fever was obtained simply by appropriate treatment of the local abnormality. In some cases in which there was a rheumatic or uric acid diathesis (so called) the first application of one of the preparations of suprarenal above mentioned caused a violent reaction, with swelling of the mucous membrane, sneezing and a profuse watery discharge from the nose, in other words, a violent hay fever attack. No such reaction followed a similar application a day or two later, but on the other hand no apparent relief followed it. The hay fever symptoms in these cases yielded finally to the internal administration of antirheumatic remedies together with the appropriate treatment of any local abnormality, if such was found to exist. The number of these rheumatic (?) cases observed is too small to support any positive statement of a general character regarding the effect of the suprarenal on them, but it is large enough to suggest the desirability of a careful observation of more of these cases.

A brief report of a few cases, illustrating some of these points, may be instructive.

CASE I. H. B., male, age thirty-five, has hay fever each year from the middle of August to frost. After hay fever has lasted for a week or two asthma comes on. The patient has frequent attacks of rheumatism throughout the year. The urine has a high specific gravity, 1,028, high color and increased acidity. Urea and uric acid are increased. No albumin and no sugar are present. An application of suprarenal extract solution with chloretone caused violent reaction with increased obstruction and watery discharge. The patient was put on an antirheumatic treatment at once. A similar application to the nose two days later was followed by no reaction but caused no appreciable relief.

CASE II. G. A., female, age twenty-seven, has had vasomotor rhinitis since an attack of grippe

five years ago. Within a year or more she has begun to have asthma also. Patient has no rheumatism or allied trouble. Both nostrils were found to be more or less obstructed by nasal polypi. No benefit was observed from either suprarenal extract with chloretone or adrenalin solution 1-5000 applied on cotton, nor was there any irritation. This case, it should be said, in spite of the removal of the polypi and the administration of various internal remedies, has shown very little improvement as yet. It is one of those cases in which the symptoms are not limited to any one period of the year.

CASE III. L. F., male, age thirty, has had for a number of years nasal obstruction in the morning, with sneezing, not limited to any season but lasting through the year. Two other members of his family have hay fever. The patient has no rheumatism. The attacks generally wear off during the morning, seldom lasting into the afternoon. An examination showed a hypertrophied condition of the lower turbinates. An application of suprarenal extract with chloretone was made. The patient returned in the afternoon suffering from a violent attack of hay fever, apparently as a result of the application. Three days later, however, no reaction followed a similar application. The hypertrophied turbinates were treated by light application of trichloroacetic acid. Solution of adrenalin chloride was also frequently applied without any reaction. After a few treatments the patient was completely cured. How much the suprarenal had to do with the cure in this case I am not prepared to say.

CASE IV. Mrs. X., age thirty, came to me first in 1898 for hay fever, which came in June and lasted through August. Her nose was always obstructed at night, and when she went out of doors she had frequent sneezing attacks. Two brothers also have hay fever. The patient is apparently in perfect health in every way. An examination of the nose discovered no abnormality, unless it were that the mucous membrane appeared moister than usual. During the summer of 1898 and 1899 she obtained considerable relief by the use of cocain, 4% solution, and antipyrine, 4% solution, applied occasionally at my office, and the use of an ointment consisting of 5 gr. orthoform and 2 dms. vaseline, applied in each nostril night and morning. In the summer of 1900 she obtained complete relief from all symptoms after a few applications of suprarenal solution with chloretone, no other remedy being used. Last summer I applied the suprarenal with chloretone on June 13 and 18, and on July 3 the adrenalin chloride solution 1-5000. The blanching of the mucous membrane following these applications was unusually marked. Relief was complete. The patient was able to go into the fields, even on a bright sunny day, without the least discomfort, a thing she had never been able to do before in the hay fever season.

CASE V. A young doctor, age twenty-six, had hay fever from boyhood. He has a rheumatic tendency. The turbinates are somewhat hyper-

trophied. No apparent benefit was derived from several applications of suprarenal, although they caused little if any irritation. Internal remedies applied, especially against the rheumatic symptoms, gave him almost complete relief. Last summer he was almost completely free from symptoms, with no treatment.

A. E. Rogers, one of the assistants in my clinic at the Massachusetts Hospital last summer, took notes independently in seven cases and has kindly sent them to me. I take pleasure in adding them here, the more so since his results agree so completely with mine. "In two cases where there existed a chronic hypertrophic rhinitis and polypoid tissue on the middle turbinate, there was not much relief from the use of the suprarenal extract. Relief was obtained after removal of polypoid tissue and treating turbinates with trichloroacetic acid. Four cases had no obstruction except that due to simple vasomotor dilatation. In these cases complete relief was obtained by the use of suprarenal extract with chloretone applied locally every other day." The powdered extract made into a paste with boric acid solution did not act so efficiently in one case of Dr. Rogers as the suprarenal with chloretone solution. Unfortunately there is no record as to whether or not any of these patients had rheumatism.

My experience is not as yet sufficient to enable me to say whether the use of suprarenal in the nose has any effect in preventing or diminishing the attacks of hay fever in subsequent years, and I am not prepared to hazard any opinion on that point. The following conclusions do seem justified:

(1) In simple vasomotor rhinitis, with no discoverable local abnormality and no general dyscrasia, suprarenal extract used locally appears to give favorable results in a large proportion of cases, either entirely preventing or much diminishing the severity of the symptoms.

(2) In cases of hay fever in which there is some local abnormality in the nose, the suprarenal extract does not act favorably until such abnormal condition is remedied, and then it may be found to be unnecessary.

(3) In cases in which there is a rheumatic or allied dyscrasia, the suprarenal is liable to cause some reaction at first, and in any event does not act as favorably as in uncomplicated cases.

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## Reports of Societies.

### SUFFOLK DISTRICT MEDICAL SOCIETY. SECTION FOR CLINICAL MEDICINE, PATHOLOGY AND HYGIENE.

HENRY F. HEWES, M.D., SECRETARY.

REGULAR meeting Feb. 19, 1902, DR. H. F. HEWES in the chair.

DR. J. PAYSON CLARK read a paper on  
THE USE OF SUPRARENAL EXTRACT IN HAY FEVER.<sup>1</sup>

DR. A. COOLIDGE: I am sorry that I have not tabulated cases of my own in which I have used suprarenal extract for hay fever, consequently I must speak entirely from my general impressions of it. My experience with suprarenal extract is very much the same as with other remedies which we have previously tried for hay fever. In a certain number of cases the results are brilliant, in a large number of cases the results are more or less encouraging, and in a certain proportion they are negative. As Dr. Clark said in the opening of his paper, it is very obvious that where a large number of different therapeutic methods are recommended for the cure of a certain condition is a proof that no one of them is universally applicable. There are several local applications and several methods of manipulation in the nasal cavities which may benefit the coryza of hay fever.

I had not noticed that the acute rhinitis and stoppage which occasionally follows the use of suprarenal extract is more frequent in rheumatic patients than in others. I have recently had two patients in whom the application of the adrenal in chloride was followed by most profuse and distressing coryza lasting for twenty-four to forty-eight hours, during which they were excessively uncomfortable, but I had no reason for supposing that either of them were rheumatic. Adrenalin is perhaps one of the best aids which we have in combating hay fever, but as with several previous methods of treatment, we cannot be certain that it is going to be of service in any individual case. In a few cases it seems to make symptoms worse, at least temporarily, and we cannot be sure that the patient who is relieved by it at one time will be relieved at some future time.

DR. J. L. GOODALE: I have been interested in the paper and the writer's conclusions. I should agree with him entirely in the division which he makes of these cases with regard to the effect of suprarenal extract, that is to say, those which show some intranasal abnormality are less likely to be relieved by the application of the extract than those in which the nose appears to be normal. I think one may divide hay fever cases roughly into two classes,—those in which there is something abnormal in the nose and those where there is little or no abnormality found. I think the latter class of cases is very much more troublesome. In the first class there is something definite for us to do; in the second class there seems to be very little we can do. I think

<sup>1</sup> See page 664 of the Journal.



a study of the pathological conditions in the mucous membrane in hay fever throws to a certain extent some light upon why various measures seem to do good. We have a vasomotor paresis, or relaxation of the muscular coats of the vessels, with a leakage of serum into the interstitial tissue, and it seems to me almost anything that caused an increased tonicity of the blood vessels did good. On that ground I think we can explain why in some cases an application to the nose during an attack seems to help, whether we incise the tissues to allow the blood and serum to escape or cauterize sensitive points or cut away a spur. I think that there is temporarily an increased tonicity of the vessels brought about, and it seems to me possible that this may explain why adrenal extract in those cases where there is no intolerance shown seems to do good: we have a marked contraction of the blood vessels, with a squeezing out of the serum and relief of the symptoms. I have in several cases of hay fever found what appeared to be a polyp hanging from the region of the infundibulum, and for one reason or another was unable to remove it at the time, and have given the patient adrenalin solution to use until the next day. On the next examination this apparent polyp had disappeared. I think that this was simply a pedunculated ballooning of the mucous membrane in that situation, which, on the application of adrenalin, was powerfully contracted from a squeezing out of the serum with resultant retraction of their size.

With regard to the rheumatic diathesis and its relation to hay fever, I have found that the administration of the so-called antirheumatic remedies before the attack seemed to relieve it very considerably, but their administration during the attack frequently seemed to aggravate it, and not only to aggravate the hay fever symptoms, but to bring on pains in the joints, so that the person really felt extremely uncomfortable, and said all his old rheumatism had come on in addition to his hay fever. Investigators who have studied the so-called uric acid diathesis are extremely sceptical as to the theory that uric acid has anything to do with rheumatism or with the rheumatic symptoms. I think it is better to say the underlying cause of rheumatism rather than uric acid. Some unknown factor is apparently set free by these antirheumatic remedies and produces temporarily exacerbation of the symptoms.

Finally, with regard to the treatment of hay fever by the application of caustics, I have been impressed more and more with the danger of indiscriminate cauterization. One is certainly tempted during the attack of hay fever to apply his caustics to these watery, swollen tissues, but I am sure that if that is done too freely after the attack of hay fever has passed off there is later an insufficient evaporation of moisture from the nose. I think it is decidedly preferable, if caustics are to be applied, to be sure that they shall cause simply a superficial coagulation of the albumin of the mucous membrane rather than a destruction of the mucous membrane itself.

DR. J. W. FARLOW: I have had considerable experience in the use of suprarenal extract as well as with its various predecessors. There is one point in Dr. Clark's treatment which seems to me not quite clear: how important a part the suprarenal extract plays, as he always preceded it by a 1% solution of cocain. It is possible even a weak solution of cocain applied with thoroughness might have considerable effect, but I think in cases where cocain is not used, particularly those where there are no abnormalities in the nose, that the suprarenal extract often diminishes the congestion of the whole neighborhood. That is a very desirable condition to bring about, provided it can be done without discomfort or distress. In my experience, in perhaps 5% of the cases, the suprarenal extract is a decided irritant. I have patients who say: "Do not use the medicine out of that bottle. I sneezed for forty-eight hours after leaving your office." That applies not only to hay fever patients, but to others. There are other ways of diminishing the amount of blood in the nose, which act in the same sort of way. It acts much in the same way as cold cloths wrung out in ice water and put over the nose and eyes. Take a patient and blanch his nose by the free use of suprarenal extract. We look in and find almost an ischemia of the turbinated bones. We take another patient and apply cold and find the turbinated bones, which formerly had been very much swollen, and the conjunctivæ, which had been very much reddened, have become very much paler and the amount of secretion in the nose has been very much diminished. It is more successful when the irritation and hypertrophy are of the inferior turbinated bone; when of the middle turbinate, it may be extremely difficult to treat. Those cases are what is sometimes called polypoid hypertrophy of the middle turbinate bone. They are not always true hay fever, but can be brought on by various irritants other than pollen, etc. I think those who see a great many cases of throat and nose disease will bear me out in the statement that such cases are much more difficult to treat and much less amenable to benefit from the suprarenal extract than those where the inferior turbinate bone alone is affected.

Another kind of case difficult to cure is where there is nothing abnormal in the nose, patients whose noses during the rest of the year give no trouble. They come in and want their sensitive areas burned. We examine and find nothing. Those who have chronic catarrh of the nose, noses covered with crusts, etc., do not sneeze as much as those whose noses are more normal. Patients are often told (and it seems to me unjustly) that the thing to do is to remove all the obstructions in the nose. If they did not have the hay fever we should not think much about the obstructions. You can have this sensitive condition as well with as without these obstructions. When a real attack comes on, such patients are often benefited by having the nose opened, by the removal of a spur or polyp, although that may not

have much to do with the continuance or recurrence of the disease, which is a very uncertain one.

A number of years ago a gentleman came to me and said a friend had recommended a hay fever remedy and he was going to get it. The next summer I asked his wife about it and she said he had had entire freedom from hay fever. Later I saw him and said: "Your wife tells me you had complete relief from using the remedy." He said: "I got the medicine, but forgot to take it." I have had a number such cases. Many of the things recommended for hay fever make it worse. The use of atropia serves to diminish the amount of nasal secretion. The best remedy is a trip to Europe or to some place in this country where there is immunity.

Dr. T. A. DEBLOIS: We have not all had Dr. Farlow's experience with hay fever. I remember when Dr. Farlow was a great sufferer, and I find he has almost recovered from it. I have never seen a case of hay fever where there was not a certain amount of nasal obstruction. It might be a passing trouble or some malformation of the nose, but I always have found the nostrils entirely obstructed and quite watery, a sponge-like appearance I never find in any other condition. I have been accustomed to use the cautery largely, perhaps too much, as Dr. Goodale suggests, but never looked very much for the sensitive areas, but rather over the redundant tissue. Where the tissue is as redundant as in hay fever I don't think you can do any great amount of damage in reducing it. You can run a line of eschar along the lower turbinate body, and yet there is plenty of tissue to keep your atrophic rhinitis back. My opinion of atrophic rhinitis is that it is nasal. I think atrophic rhinitis commences in youth and keeps on through life.

My experience with suprarenal extract is moderately limited and very unsatisfactory. I think it is a very slender rod to lean on in any way. I never have used it as a hemostatic without being thankful I got through it and saying I never would use it again, that is, the use of suprarenal before operation. I have used the powders and the tablets — principally Armour's — in hay fever and hay asthma, that is, I presume the same condition existing in the bronchi, and it has been always moderately unsatisfactory. I have also used anti-rheumatic remedies, principally the salicylates, have found a very good effect from them and iodides. I think the best reliance in hay fever is the hot wire. I think that escharotics, as nitrates or acetic acids, are unreliable and uncertain, and you do not know what you are doing. With a cautery point you know what you are reducing, and how far you are cutting down, and to my mind it is the most reliable remedy.

Dr. F. L. JACK: I should like to ask one question of the gentlemen who have spoken in favor of cauterization. I understand from what has been said that they use it during the acute stages of hay fever. Now, it seems to me, that with turbinates congested, as we find them at this time, the use of

the cautery increases the symptoms, temporarily at least, much to the sufferer's discomfort. It is often possible to afford relief by means of adrenalin, or some other soothing application, applying the cautery, if desirable, after the acute symptoms have passed, with the idea of preventing subsequent attacks. In my experience, removing the edge of the turbinates by means of cutting instruments has been more effective than cauterization. Some of these cases have gone several years without an attack. However, this relief may not be attributed to the treatment, as we know what an uncertain disease this is. To repeat the question, do the men who have spoken in favor of the cautery advise its use at the time of an acute attack?

Dr. DEBLOIS: I do.

Dr. FARLOW: I do not.

Dr. J. P. CLARK: In regard to what Dr. Jack said, I never use the galvano-cautery myself in hay fever cases. I am rather cautious about using it in the nose anyway. I think what Dr. Goodale said about the use of the galvano-cautery is very true, especially in hay fever cases. As to the possibility of adrenalin losing its effect on a patient after long-continued use, all I can say is that I have yet to see a case in which there was not just as powerful contraction of the tissues after the last application as after the first. I do not think that any tolerance is acquired at all in that sense. As regards rheumatic cases, I did not mean to imply that rheumatic cases were the only ones that were intolerant to the use of adrenalin solutions. I was struck by the fact that the rheumatic patients I had were intolerant to it, but I have had other patients without rheumatic symptoms who were also intolerant. I would not go as far as to say that intolerance showed rheumatism. Speaking of the uric acid diathesis, I said in my paper "so-called." I did not intend to commit myself to the theory that uric acid causes rheumatism. In regard to what Dr. Farlow said of the use of cocaine solutions before the use of the adrenalin solutions, I think whatever force there may be in that statement would be perhaps overruled by the fact that I have used cocaine solutions before using other forms of treatment, and never got the beneficial results mentioned except from cocaine plus adrenalin solution.

Dr. R. F. CHASE gave a

REPORT OF A CASE OF CHRONIC, CONTINUOUS  
HYPERSECRETION, WITH HYPERCHLORHYDRIA  
(REICHMANN'S DISEASE), WITH SPECIAL REFER-  
ENCE TO TREATMENT.

Dr. SMITHWICK: I have been very much interested in this careful study of an interesting case. Today I was looking through my records of hyperchlorhydria cases to see how many I had examined fasting, and I found only eight cases where I have examined the contents of the fasting stomach, all these analyses being made in the morning. This number of cases is altogether too small to be of statistical value, but it is interesting to note that I have attempted to get the contents

from some of these cases several times and never failed. There has always been a stomach contents in the morning with a percentage of free HCl varying from .08% to .35%, three cases having over .3%. It has been my impression that a large number of hyperchlorhydria cases would show more or less continuous secretion fasting, and I am sorry I cannot find a larger number of cases to report.

It seems to me that if you follow these cases of hyperchlorhydria through a long period of time regardless of treatment, you notice increase and decrease in the secretion of acid, so that one, I think, is very likely to conclude, if he starts treatment at a favorable time, that the treatment is favorable. Some of these eight cases probably have continuous secretion when they have hyperchlorhydria. There is none of these stomachs that would not empty itself in the normal period of time.

Nearly all the cases of hyperchlorhydria that have been under my care have been treated as neuroses. It seems to me that the great mass of these cases are neuroses. It is my custom to take a very careful history and to make a very careful examination, then to determine the variety of digestive trouble present and explain it carefully to the patient. It seems to me that that is the rational course, makes him less introspective, and takes his attention away from his stomach. I have tried various kinds of local treatment. Sometimes diet will serve and sometimes alkalies and gastric sedatives. In a certain number of intense cases where lavage has failed to relieve I have tried, as has been recommended, pouring into the stomach, after lavage with plain water, 8 oz. of a 1 to 1000 nitrate of silver solution, leaving it in five minutes and removing and washing the stomach. That at times has given the patient freedom from pain for several days. I have never noticed it had any effect upon the secretion of acid.

There is one thing I would like to speak of in regard to these cases. Every once in a while I see a case of this ailment where somebody has examined the patient and told him that he had some ailment, that he really had not, and where it was very evident that the man who examined him knew he had not, and it seems to me that is an unjustifiable thing to do with this nervous class of cases. For instance, the patient may be complaining of several troublesome symptoms, say of constipation, and the man will examine the patient and tell him he has a slight stricture of the bowel, and this stricture can be remedied by medicinal treatment. Now, it seems to me that that is very unjustifiable. It is bound to be depressing to the patient, and it is bad, especially if he goes out from the care of this man, and it seems to me in treating these cases one ought to treat them as neuroses. He ought to be very frank with them, tell them just what is the matter and explain to them carefully that the stomach trouble is secondary to something else, to the condition of nervous system, and that that condition of the nervous system is caused by

some nervous irritation; then the patient can assist you to find out what that is, and usually by a careful history and careful examination you will be able to find out what it is. In one case it might be business trouble, in another eye strain, etc., but whatever it is this cause must be removed or modified in some way or the patient gotten into such an attitude toward his trouble that he will be more or less indifferent toward it in order to affect the trouble. It does not seem to me treatment of the stomach itself can be expected to cure, and I find the more of these cases I see the less stress I lay on direct treatment of the stomach and the more upon the general management of the case.

DR. HEWES: I will ask the reader to explain his statement that the results of the rectal feeding in his case proved that the case was one of Reichmann's disease.

DR. CHASE: The results of examination and experiment in this case certainly indicate hypersecretion, but they do not definitely prove that here it was not an associate of some other condition, as ulcer, a hyperchlorhydria, with which conditions hypersecretion is often associated. Reichmann's disease, as I understand it, means an idiopathic hypersecretion, a condition in which hypersecretion is the only pathological condition discoverable. This disease, being one of rare occurrence, claims our notice from a practical point of view, principally as one of the conditions to be considered in the differential diagnosis of a very important class of affections of the stomach.

The symptomatology of hypersecretion, whether continual or periodic, is in its prominent manifestations very similar to that often seen in cases of ulcer of the stomach, hyperchlorhydria, and in conditions of stasis of gastric contents, its chymia so called. In all of these conditions the cardinal symptoms are apt to be a combination of pain or distress, more or less continuous, the accumulation of large quantities of gastric contents in the stomach at periods when the organ should be empty, and ordinarily vomiting of these contents. With this symptomatology all of these conditions, including idiopathic hypersecretion, must be considered. Which of these fundamental disorders is present in a given case can be determined only by a careful differential diagnosis.

I have seen continual hypersecretion such as described by the reader in a case of ulcer of the stomach. The case was finally proven to be ulcer by the occurrence of a hemorrhage after three months of the hypersecretion. I have seen periodic hypersecretion with vomiting of three quarts of fluid in twenty-four hours, while on rectal feeding, in another case of ulcer of the stomach. It was only after some time that it was possible to determine whether the hypersecretion in these cases was idiopathic, so called, or secondary. With stasis of contents and dilatation of the stomach hypersecretion is very common. Here, however, the differentiation is simple under the proper methods of experimental ex-

amination. Hyperchlorhydria can be differentiated by the analysis of the contents.

DR. SMITHWICK: I remember a young girl I examined with Dr. Arnold. The stomach contents were examined a large number of times, and we never found anything but hypersecretion with a rather high average of hydrochloric acid, but she complained of so much continual distress that at last we decided for certain reasons that the girl could not be trusted, certainly could not have the distress she complained of, and it was decided to send her into the hospital to have her under observation. She entered Dr. Buckingham's service, and the next morning vomited a big amount of blood. In all the analyses made no evidence of blood had been found. This hemorrhage blanched her. Previous to the hemorrhage a very intelligent house officer had found the stigmata of hysteria, so that the diagnosis of probable hysteria was made before the hemorrhage. Then came the hemorrhage, which showed it was probably a case of ulcer. She had been under observation several weeks.

DR. R. F. CHASE: Besides the finding of considerable amounts of hyperacid secretion in the fasting stomach on various occasions, Boas claims that certain subjective symptoms must be present to warrant the diagnosis of Reichmann's disease. Vomiting of highly acid contents, as Dr. Hewes has said, is one of the principal symptoms; other symptoms are the clean tongue, usually good appetite, constipation, emaciation, and gastralgia. The cases in which Dr. Hewes has referred, I should judge, might be mistaken for Reichmann's disease until a sufficient period of observation proved the contrary. I have seen several cases in which I suspected Reichmann's disease, but further observation proved they were not. In the case under consideration, I was not certain of the diagnosis until several visits had been made. This case, from the long duration of the affection, the severity of the gastralgia and the high acidity of the fasting contents, is shown to be one of unusual severity. Dr. Hewes tells me he has a case under observation in which the free HCl at times is as high as 5 per mille. This acidity is higher than I have ever seen reported.

#### THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

STATED meeting April 14, 1902, the president, DR. ANDREW H. SMITH, in the chair.

DR. WM. J. MORTON read a paper on

#### RADIOTHERAPY FOR CANCER AND OTHER DISEASES.

It was admitted today, he said, that the x-ray has, in a certain number of instances, cured cases of every form of malignant growth, and that it cures lupus. Eczema, psoriasis, purigo, acne vulgaris, favus, rosacea and tuberculous foci have also been cured by it. It would seem, therefore, that it is in just those diseases and conditions pre-

viously least amenable to treatment that the x-ray scores its most signal successes. This agent, it may be said, promises extreme utility in pulmonary tuberculosis, it has a remarkable effect in relieving pain, it assists in healing burns, wounds, ulcers and sores, and it will not be surprising if it cures leprosy. As to technique, radiotherapy is based upon the fundamental fact that x-radiation exerts a specific influence on the life processes of animal as well as vegetable tissue. While it is most openly manifested upon the integument, laboratory experiments show that, weeks after irradiation, small animals undergo structural changes, always of the type of ordinary inflammation, which may even result fatally and which may be demonstrated post-mortem. The important point to be emphasized is that radiotherapy is by no means to be confined to exterior diseases and conditions, but is equally applicable to affections of the interior, like cancer, and in general to internal diseases. Included in its specific influence there is also naturally a decided bactericidal action. Antecedent to the production of the x-ray is an electric current of high potential, a vacuum tube and the production of a cathode ray. When the cathodic stream strikes the platinum mirror, or other sort of target, a new kind of radiation is established, called by Röntgen the x-radiation. The x-rays are believed by Prof. J. J. Thompson to be a mixture of vibrations which may be termed pulsations of the ether, and which may be compared to the irregular pulsations of the air in producing those sound waves which we term noise. This would account for the very great uncertainty which exists in the effects of the x-ray when utilized for treatment. In a given vacuum it is seldom, for any length of time, of one and the same quality; it runs up and down a scale whose rates we cannot now determine. It is the x-ray itself which sets up dermatitis, produces necrosis, or, when properly used, cures diseases. The cathode rays do not escape from the vacuum tube. He said he did not believe that, as claimed, the electric pulsations given off from the tube exert a harmful influence, and that he did not consider it essential to employ an aluminum grounded screen. Taking up the subject of cancer, he said that it would greatly hasten therapeutic progress if we had any definite knowledge of what the pathology of the disease is. In the lack of this our attitude must be almost entirely empirical and clinical, so that we have to feel our way along with careful experimentation and observation.

As to the source of electrical energy, a Rumpkorff coil, a static machine or an oscillator provides this, with, so far as is known, no demonstrable differences in the quality of the x-ray produced. Functionating tubes are classified as soft, medium and hard. At either end of this scale are the tubes which are too soft (those containing too much air and not allowing of the transformation of the current into x-rays) and those which are too hard (containing too little air, so that they cannot be penetrated by electrical currents). The x-ray from the soft tube possesses but little penetrating

power, and has slight therapeutic value. That from the medium tube has a good penetrating power, though much of it is absorbed by the integument and should be employed when it is desired to produce an effect upon the skin. The x-ray from the hard tube, which possesses the most highly penetrating power, should be employed to affect the deeper parts of the body. Personally, Dr. Morton said, he leaned in his preference towards a hard tube in all his treatments. It should be borne in mind that the skin of the face and hands is more sensitive to the ray than that of other regions, that the mucous membrane is more susceptible than the skin, and that areas of existing inflammation are the most susceptible.

When carried to extremes, the general effect of an exposure is to produce the common symptoms of inflammation. When not so carried, or when used within other therapeutic limits, he supposed the effect to be due to a reaction in the vital tissue processes (metabolism) ascribable to having set up new chemical changes. Scientific analogy, he thought, pointed to the action of the x-ray as one of ionization. He had noted two rather constant reactions in the treatment of cancer. The first, occurring in general carcinomatous infection, might be termed an early reaction period. In this the temperature may rise from 1° to 2°, the pulse is increased in frequency, and the patient experiences "nervousness" and unrest, and an increase of general fugitive pains. But the rule is an immediate cessation of pain, and within a few days the disappearance of small nodules. The late reaction, which occurs in from one to three weeks, is local and seems to resemble in this respect the familiar effects of dermatitis. This reaction is in reality the first objective evidence of a retrogression of the malignant growth.

(To be continued.)

**VACCINATION CHARGED AS ASSAULT.**—According to the *Medical Record*, the principal of a public school in Brooklyn and an inspector of the Health Department were brought to court recently on the complaint of the father of one of the pupils, charging them with assault in the third degree. The complainant alleged that his daughter, six years old, was forcibly vaccinated by the physician at the direction of the principal. The father of the child in question did not produce the necessary certificate of vaccination, although he claimed that he had one, and so the child was told she must be vaccinated, and to this, the accused physician and principal assert, she gave her consent. The case has not yet been tried.

**APPOINTMENT OF DR. L. EMMETT HOLT.**—At a meeting of the trustees of Columbia University, held June 2, the resignation of Dr. Abraham Jacobi from the professorship of diseases of children was accepted, and Dr. L. Emmett Holt was appointed to succeed him.

## THE BOSTON Medical and Surgical Journal.

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### ANNUAL REPORT OF THE MASSACHUSETTS STATE BOARD OF INSANITY.

AFTER some years of effort on the part of the medical profession, the State Board of Insanity of Massachusetts was created in 1898, by act of legislature, which provides that the board shall consist of five members, two of whom at least must be experts in insanity, and requires that the board shall appoint as its executive officer a physician expert in insanity. The twenty-nine sections of the law give to the board large powers and wide duties, practical and scientific.

The Third Annual Report of the board for the year ending Sept. 30, 1901, contains a concise and very creditable description of the extensive work supervised by that body.

There are altogether 7,642 patients in State institutions, and in addition to these 519 in the Boston Insane Hospital, 1,123 in city and town almshouses, 117 in private families, and 80 in private families under the care of overseers of the poor, 392 in private institutions, and 837 in institutions for the feeble-minded. This makes a grand total of 10,710 persons, with an increase of 356 patients during the year; of these 334 belong to the State institutions. The average overflow of patients from public institutions calculated to a mean daily average number of patients has been 28.35%; of these 5.29% had recovered, 10.33% were dead, 3.31% were transferred, and 9.12% discharged to friends unrecovered.

Much emphasis is put on the overcrowding which unfortunately is allowed by the legislature to go on under the pretense of economy, contrary to all sense of justice towards the public and the patients. Twelve and thirty-six hundredths per cent. of all the patients were sleeping on beds set up in halls, etc., each night, and removed each morning, notwithstanding the conversion of sin-

gle into double rooms to a considerable extent, and an excessive number of beds in dormitories.

An attempt is made to classify the cases into : (a) The acute and curable insane; (b) the chronic insane of the custodial class and those of the infirmary class; (c) the chronic able-bodied insane for the colony class. Seven per cent. of the patients of the admitting institutions are said to have acute and curable disorders; 93% to belong to the asylum and colony class. On this ground the State board recommends to provide: (1) Development of the State colony each year for about 100 patients; (2) erection of buildings for working patients at each institution; (3) provision for nurses (both men and women) in separate buildings; (4) the addition of infirmary wards as an extension of present buildings or as separate infirmaries.

As was stated above hardly enough can be said in favor of the propositions concerning the necessity of enlargement of the institutions required by the annual increase and the imminent absorption of all the county institutions into State care. Besides the enlargement of the State colony the board proposes local colonies attached to the hospitals, and especially provisions for the acute curable insane (which should also include the "chronic" cases capable of considerable improvement) in especially well-arranged hospital divisions. The public should not be deceived by the existence in some hospitals of new infirmary wards which after all fail to provide sufficient improvement where the conditions are most difficult to manage. As long as the wards for excited cases are so poorly equipped that the patients who are in greatest danger of mismanagement are kept in restraint, and many are forced to sleep on straw beds in the halls, there is a crying need for improvement.

Due emphasis is laid on the fact that the new division for acute cases requires more expensive provisions for nursing, diet, medical care, and investigation, and that in keeping it independent in its operation, it would be possible to do justice to the new requirements without unnecessarily raising the standards of expense of the custodial departments. This plan has a decided advantage over that preferred in many places, which is, that these psychopathic wards for admissions and acute cases ought to be totally detached from the existing hospitals. The advantages of having workshops, gardening and farms accessible for convalescents can hardly be overrated. Moreover, the influence of a well-organized service for acute cases near the existing hospitals will necessarily be of great advantage in keeping up a higher standard of medical work in the already existing departments.

The beginning made for the acquisition of ground for a State colony near Gardner is very creditable.

The volume contains abstracts from the reports of the various State hospitals and useful statistical tables, distinguished from those of other states by the absence of that forced uniformity which is too obviously obtained at the expense of facts. Where there is so much divergence of opinion as in nomenclature and general pathological conceptions of psychiatry, it is, indeed, best to group the data under the names given by those who collect them until more actual uniformity warrants a simplification of the tables.

Considering the interest which the State Board of Insanity is expected to take in the medical development of psychiatry in the State, one might well expect a move in the direction of furthering the interests of purely medical work, where it is undertaken. The efforts of several institutions are given due credit, but the absence of a definite stand taken by the State board has undoubtedly something to do with the lack of determination in taking the necessary steps to give the efforts the desired vitality.

Since the Harvard Medical School is planning a certain reorganization and expansion, the State board might well take up the question of how the State could co-operate with the educational institutions so that the experience collected in its hospitals, or under some improved conditions such as the creation of a much-needed clinic, could furnish more efficient means than heretofore for the teaching of the physicians going forth from schools. A more thorough acquaintance with psychiatry on the part of the general practitioner is an absolute requisite for the promotion of true interest in the cause on the part of the public. More physicians should be able to plan better opportunities for rational early treatment, before the impossibility of handling the patient brings the need of treatment to a point necessitating the too long delayed commitment or other psychiatric attentions. The board, dealing as it does with a grand total of over 10,000 persons, ought to see the need of more practical psychiatric instruction more readily than the individual practitioner, and even the college professor, and should be the pioneer; and if the practitioner gets more organized instruction from men who stand in the centre of psychiatric practice and investigation, he will see that there is much to be done outside of the 10,000 patients actually under State care. Surely this is a matter in which the State board might well be expected to come to the front.

Although there is a certain disappointment as to its activity in the direction of promoting these purely medical matters, the State board has certainly demonstrated the wisdom of its creation.



## ANNUAL DINNER OF THE MASSACHUSETTS MEDICAL SOCIETY.

WHATEVER attraction the various exercises connected with the meeting of the Massachusetts Medical Society may have, it is evident that they sink into insignificance as compared with the annual dinner. The combination of conviviality and speechmaking appears to be irresistible to the average man. The dinner this year was attended by about one thousand members of the society, who had an exceptionally satisfactory and well-served meal, followed by speeches far above the average of such occasions.

Dr. Frank W. Draper, the president of the society, in his introductory remarks, spoke of the increasing prosperity of the society, and entered a plea for a still larger membership. The society should rise to a full sense of its responsibility in the prevention of the passage of laws, under the specious name of "personal liberty," which are really aimed at the progress of medical science, and have at their basis individual aggrandizement. The legislature has hitherto stood behind the society in its efforts to maintain high standards of medical practice, but, eternal vigilance is the price of safety, and the society must be ready and willing to meet all problems as they arise. Dr. Draper then introduced Mr. Melvin O. Adams of the Suffolk Bar, as a representative of the legal profession. Mr. Adams, at the opening of his speech, alluded to the occasion as the "annual food festival," and continued in a jocose vein for the greater part of his remarks, which were, nevertheless, full of keen observations and occasional good suggestions. One, to which we are quite willing to add our endorsement, was his protest against the habit of writing prescriptions in Latin, and usually in very bad Latin. He also pointed out some of the foibles of the modern trained nurse, which again we must recognize as in great measure true. He spoke with feeling of the "conversational clinics, held by the nurse, the length of which is in inverse ratio to the age of the attending physician." So diversified had been the agencies used in his treatment during a recent illness that he felt sure he was suffering from the inroads of a germ to which he would give the name of the "octopococcus." These entertaining remarks were concluded by a tribute to McKinley and the usual somewhat fulsome statements regarding the nobility and self-sacrifice of the medical profession.

The Rev. Paul Revere Frothingham was introduced with a request that he inform the company why the so-called conflict between religion and science was a thing of the past. This Mr. Frothingham did with much grace, by saying that there is no longer a conflict, because a deeper un-

derstanding and a proper adjustment has been reached, and that never before has science been so religious and religion so scientific as at the present time; that devotion to absolute health which the medical profession represents is religion itself. The speaker drew an interesting parallel between the professions of medicine and the ministry, and acknowledged the debt which the clerical profession owes to the physician. This speech was a memorable one, broad in its interpretation of the interrelationships of two great professions.

Professor William T. Sedgwick of the Massachusetts Institute of Technology was the next speaker. He regarded medicine as applied biology and paid a stirring tribute to the influence on medicine of Darwin and Pasteur, neither of whom were doctors of medicine. He spoke of the preventive medicine of the future as "medical engineering," defining engineering as the use and control of the material and forces of nature for the benefit and welfare of man. An attack on the methods and aims of the antivivisectionists and antivaccinationists followed, in which the speaker insisted on the necessity of taking the community into our confidence in these matters; that it was far wiser to educate than to agitate.

The last speech was from Dr. F. C. Shattuck, who outlined the history of the recent acquisition of property and prospective buildings for the Harvard Medical School. It was a noteworthy fact that formerly contributions for medical study came largely from physicians and their families, but that now it was being recognized by philanthropists that no better or more profitable investment can be made than to endow institutions for medical research. It was also an interesting fact that no sign of envy had been excited among other medical institutions by Harvard's good fortune; it was generally recognized that the good of one was the good of all. Advances in the future were to be looked for along the line of what the speaker preferred to call "biological chemistry"; he feared, however, carrying the elective system too far backward, while recognizing that specialism is indispensable and potent for good.

The dinner, both physically and mentally, was stimulating.

## REPORT ON THE OUTBREAK OF CHOLERA IN THE PHILIPPINES.

A REPORT for the month ending April 15, just received from the chief surgeon of the Philippines, gives much attention to the question of cholera, which made its appearance during the month. The district first attacked was the Farola, the most unsanitary district of the city of

Manila and one of the first and greatest sufferers from the disease in the great cholera epidemic of 1882. Its only houses were nipa huts built over the waters of the bay; there were no closets, and garbage and fecal matter were deposited on the shore and in the water. Vegetables from infected Chinese ports were not admitted into Manila after March 5, but a large amount of such vegetables were thrown into the bay and the Board of Health is inclined to believe that cholera was first contracted by persons eating such vegetables. There is one strong point against this hypothesis, which is that other districts exactly like the Farola in every respect except water supply were not attacked at first, nor had many of them reported cases up to the date of the report. The inhabitants of the Farola drank Pasig River water, foul with the sewage of the city. It seems probable that this stream became infected somewhere near the lower end, and this is borne out by the fact that a large proportion of those since attacked have been consumers of Pasig River water. The Farola itself has been burned.

Within Manila a total of 275 cases with 215 deaths had occurred up to April 15, and 453 cases with 308 deaths outside the city to April 14. In the provinces the disease had appeared in twenty-two different places. The most distant point was Nueva Caceres, in southern Luzon, and this was the only point at which the army had suffered up to that time—two men of the Ninth (colored) Cavalry and one of the Twenty-sixth Infantry having had the disease. The colored soldiers mix much more with the natives than do the whites, eating their food and drinking water in the shacks which they visit, and are, therefore, much more liable to the disease. The white soldier is reported to have contracted the disease from water or food procured from native houses contrary to orders.

Vigorous quarantine measures have been carried out by the Manila Board of Health, including a quarantine of Manila from all other points. Distilled water has been provided, house-to-house inspections made, a detention camp established, quarantining of the sick and disinfection of contaminated articles. The inland quarantine has not been successful, though persons have been kept away from the Mariquina River, the municipal source of supply, and many sick have undoubtedly been prevented from leaving the city.

At the time of the outbreak six medical officers of the army were on duty with the Board of Health, and shortly afterward it became necessary to detail twenty-two more. In addition, the provincial and municipal boards of health being inefficient, on request of the civil governor to the division commander, medical officers of the

army have been given practical charge of health matters in towns in or near which troops are stationed. Their efforts to limit the spread of the disease have been largely successful, except in Camarines, where there were over one hundred cases shortly after the appearance of the disease in the Philippines.

The general situation was not considered as encouraging at the time the report was written. The number of different points attacked and the consequent infection of many streams in common use for drinking and bathing purposes, and into which nearly all fecal material and garbage find their way, render probable the occurrence of a large number of deaths before the rainy season, with which the two epidemics of a couple of decades ago terminated. As far as the soldiers and other Americans are concerned, they are much better protected than the natives against cholera, by the care taken to supply them with good food and water. Orders and circulars have been issued covering all points necessary to prevent the spread of the disease among both soldiers and civilians. As good quicklime cannot be obtained in the Philippines, chloride of lime is being freely distributed for army use. A cholera hospital has also been established for the use of the army, and full literature on the subject of this disease has been sent to all officers.

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#### THE NOMINEE FOR SURGEON-GENERAL OF THE ARMY.

THE President has nominated Col. William H. Forwood, assistant surgeon-general, to be Surgeon-General of the Army, succeeding Surgeon-General Sternberg, recently retired for age. Colonel Forwood will himself retire for age on Sept. 7 next, so that he will scarcely change the policy of his predecessor in office.

Colonel Forwood has had a long and conspicuously valuable career in the military service. Born in Delaware, he entered the Medical Department of the Army Aug. 5, 1861. He was promoted to the grade of captain in 1866, major in 1876, lieutenant-colonel in 1891 and colonel in 1897, being the senior medical officer of the army at the present time. He served in many important positions and posts of danger during the Civil War, being captured by the enemy and making his escape under a heavy fire, and again being severely wounded while performing his duties in battle. He was twice breveted "for faithful and meritorious services." Subsequent to the Civil War he served at various posts in the West and participated in several expeditions against the Indians. During the years 1881-1883 he was surgeon and naturalist to the military ex-

ploring expeditions through Wyoming, Montana and Idaho. Later he was attending surgeon at army headquarters in Chicago, served in the Department of Dakota, and ultimately became surgeon at the Soldiers' Home, Washington, D. C., where he remained on duty until 1898. During the Spanish War he was in charge of the establishment and operation of the General Hospital, Montauk Point. Later he was chief surgeon, Department of California, from which large numbers of troops and vast quantities of supplies were being shipped to the Philippines. During the past year he has been on duty at the War Department, as assistant to Surgeon-General Sternberg.

Colonel Forwood is a man of much professional ability and a skilled surgical operator. He is a recognized authority on military surgery, and many of the articles on this subject in standard works on surgery are from his pen. He was, for a number of years, professor of surgery and surgical pathology at Georgetown University, Washington, D. C. It is certain that during the short period of his administration the Medical Department of the Army will not be allowed in any way to deteriorate from its present professional and administrative standards.

#### MEDICAL NOTES.

**OFFICERS OF AMERICAN CONGRESS OF TUBERCULOSIS.**—At the American Congress of Tuberculosis, which met at the Hotel Majestic on June 2 and 3, the following officers were elected for the ensuing year: Honorary President, Dr. H. D. Holton of Vermont; President, Dr. Daniel Lewis of New York; First Vice-President, Dr. J. H. Eagan of Illinois; Second Vice-President, Dr. Frank Paschal of Texas; Third Vice-President, Dr. E. J. Barrick of Toronto, Can.; Fourth Vice-President, Dr. Irving A. Watson of New Hampshire; Fifth Vice-President, Dr. Romola of Guatemala; Secretary, Dr. George Braun of Georgia; Treasurer, Dr. P. H. Bryce of Toronto.

**A CENTENARIAN.**—Matthew Tobin, a pioneer of Kansas, has died in Salina, Kan., at the reputed age of 105 years. His first wife died in 1830, and his second wife, who survives him, is said to be 95 years of age.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, June 18, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 30, scarlatina 12, measles 82, typhoid fever 9, smallpox 5.

**STATE VACCINE LYMPH.**—The Massachusetts Board of Health reported last week to the Legislature on its investigation of the feasibility of manufacturing pure vaccine lymph. The board recommends extending to the manufacture and free distribution of free vaccine lymph the system which has been in vogue in regard to diphtheria antitoxin since 1895. It recommends the construction of a building for the housing of animals. Future demands, it thinks, should be based, not upon population, but upon the birth-rate. If the vaccination is thoroughly carried out by local sanitary officials, it is estimated that 150,000 persons will be vaccinated annually, of whom 60,000 will be infants, 50,000 revaccinations and 40,000 immigrants. It is estimated that the necessary buildings will cost \$20,500 and the annual expenditure for salaries, etc., will be \$6,500.

**OSTEOPATHISTS REFUSED REGISTRATION.**—By a vote of 102 to 45 the Massachusetts House has refused a third reading to the bill providing that osteopaths shall be registered as such by the Board of Registration in Medicine.

#### NEW YORK.

**COMPLIMENTARY DINNER TO SURGEON-GENERAL STERNBERG.**—A complimentary dinner was given to Surgeon-General George M. Sternberg at Delmonico's, on June 13, to give expression on the occasion of his retirement to the appreciation on the part of the medical profession of the distinguished services rendered by him during his term of office and of his eminent contributions to scientific medicine and surgery during his entire career. Dr. Edward G. Janeway presided and among the prominent men present, other than those from New York, were Dr. P. M. Rixey, Surgeon-General of the Navy, Assistant Surgeon-General Henry Lippincott, Professor William Osler, and Dr. Frank Billings of Chicago, president-elect of the American Medical Association. At a meeting of the board of estimate and apportionment, held June 18, \$350,000 was appropriated for the construction of public baths in the borough of Manhattan and \$125,000 for baths in Brooklyn. The necessity for these additional interior baths is all the more urgent from the fact that fewer floating baths on the rivers than heretofore will be opened this summer, as a number of the sites of these baths have been condemned as dangerous to health on account of sewage contamination of the water.

**VACCINATION.**—The bulletin of the State Department of Health for April devotes special attention to the subject of smallpox and vaccination. It is stated that of 740 cases of smallpox reported to the department, 552 had never been vaccinated

and 188 had been vaccinated, most of them in childhood; a few within two years, whether successfully not always being stated. In rare cases immunity appears to have been lost in six months. One case of smallpox occurring the second time in one individual has recently been reported. The medical profession is urged to create a public sentiment in favor of the necessity of vaccination, since compulsory vaccination, except in case of urgent necessity as an extreme measure by boards of health, is not established in the State. "As to the dangers of vaccination," the bulletin goes on to say, "it can without question be said that none exists if virus free from taint is used, with reasonable care in using it and in keeping the abrasion and the resulting scar free from the introduction of external infection."

COLLEGE OF PHYSICIANS AND SURGEONS.—There were 852 graduates in the various departments of Columbia at the annual commencement on June 11, and of these, 144 received the degree of M.D. The biennial Alumni Association prize of \$500 was awarded to Dr. George Alfred Lawrence. The three fellowships of the Alumni Association, of the annual value of \$500, were awarded as follows: Fellow in Anatomy, Dr. Edward Anthony Spitzka; Fellows in Pathology, Drs. Hugh Dayton and Augustus B. Wadsworth. The Alonzo Clark scholarship, of the annual value of \$700, to promote the discovery of new facts in medical science, was awarded to Dr. Augustus J. Lartigan.

"AMERICAN GYNECOLOGY:" A NEW JOURNAL.—*American Gynecology* is to be the title of a new journal which is announced to begin publication in July in New York. It will be devoted to gynecology, abdominal surgery and obstetrics. It is said that the journal will be owned and controlled by a stock company consisting solely of members of the profession interested in its special field. It will be conducted under the combined editorial management of Drs. J. Wesley Bovee of Washington, D. C., Charles Jewett of New York, Charles P. Noble of Philadelphia, Reuben Peterson of Ann Arbor, Mich., and J. Whitridge Williams of Baltimore.

### Correspondence.

#### DRAWBACKS SUSCEPTIBLE OF AMELIORATION AT THE ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY.

Boston, June 14, 1902.

MR. EDITOR: The meeting of the Massachusetts Medical Society just passed suggests a few remarks upon a point of amateur psychology, and a piece of criticism which, if not agreeable either to give or to receive, may be quite as useful as indiscriminate praise.

There may be distinguished in the process of listening to a paper with a view to understanding it, at least three independent processes, the first purely physical and the others intellectual, but all active. The first consists in hearing distinctly the sounds emitted by the speaker, that is, adjusting the organ of hearing by the position of the head and the tension of the aural muscles. This is an act which in the partially deaf has been distinctly shown by Dr. Blake to be a source of no inconsiderable fatigue, and under certain circumstances—such as those obtaining in Paul Revere Hall—everybody is partially deaf, as was very evident from the position and remarks of many would-be hearers even within the first six or seven rows. This source of fatigue has not been so thoroughly exploited as the cause of many nervous symptoms as the corresponding difficulties in the way of distinct vision, but one can hardly doubt that it may be a real one. The amount of nervous energy expended in a constant and only partially successful attempt to keep a delicate muscle at just the right degree of tension depends, as in the case of the ciliary and other ocular muscles, not on their bulk, but on the strain put upon the attention.

The two intellectual processes consist (1) in the putting together of the sounds heard into a sentence which has a meaning, and (2) in judging of the information conveyed or the force of the arguments. Under ordinary circumstances the first of these should not be perceptible or noticeable, but when the sounds received are fragmentary and doubtful it becomes a distinct and wearisome process. I asked one of my neighbors—neither of us being very far from the speakers—how many words he could distinguish, and he said: "About five out of six—if I pay attention." Now, it is extremely likely to happen that the sixth word which he could not catch might be the key word of the syllable upon which the meaning depended, and if his mind were diverted by the process of hunting for that meaning by means of the context or of the previous remarks, it must have been impossible for it to be employed on what ought to be the only cerebral process consciously involved, the only process upon which the attention should be concentrated, that of the grasping and reception of the idea. Therefore, Mr. Editor, it seems to me that a great many auditors not only waste their time, but get a distinct injury in these partially futile attempts, which I hope it will not be necessary to repeat.

At the lecture of Dr. Billings in John Ware Hall the source of much difficulty of hearing was of another kind. Members kept constantly coming in during the first hour and as the construction of the seats caused each one to emit a squeak as the intended occupant settled himself into it, there was a constant interruption. When diagrams or illustrations are shown a word or two may be lost now and then without serious detriment to the meaning, but when in addition a listener and spectator is obliged to be constantly dodging the flamboyant headgear of his professional sisters he labors under difficulties which he might willingly undergo if necessary for the pleasure of hearing so good an exposition of a very important subject, but which ought not to be wantonly inflicted upon him by judicious management.

My last complaint is the dislocation of the program, so that neither the speaker nor one who desires to hear him can tell when he is to be heard.

For these drawbacks there are remedies simple and not in reality producing hardships so great as are now suffered:

Do not use Paul Revere Hall again.

Give each speaker his definite limit of time and make him stick to it. There is not one paper in twenty of those read that will not bear boiling down for the purposes of delivery. Let history, references, and a large mass of detail wait for the printer. Announce that the doors will be shut at the beginning of each paper—and shut them. Provide a place outside where those can go who "wish to meet a man."

Very truly yours,  
GROWLER.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 7, 1902.

CITIES.	Population Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					Cerebro spinal meningitis.
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Measles.		
New York . .	3,665,352	1,272	418	29.10	9.78	3.53	1.72	—	.25
Chicago . . .	1,852,828	472	116	24.14	10.16	2.54	1.69	—	—
Philadelphia .	1,349,624	398	122	21.85	9.80	2.26	8.00	—	.25
St. Louis . . .	603,717	—	—	—	—	—	—	—	—
Baltimore . .	525,330	185	46	31.86	5.94	1.08	—	—	1.62
Cleveland . .	411,826	—	—	—	—	—	—	—	—
Buffalo . . .	378,742	—	—	—	—	—	—	—	—
Pittsburg . .	341,401	128	41	31.02	11.90	1.58	2.97	—	—
Cincinnati . .	332,032	—	—	—	—	—	—	—	—
Milwaukee . .	304,975	—	—	—	—	—	—	—	—
Washington .	289,537	—	—	—	—	—	—	—	—
Providence . .	186,870	64	15	20.28	9.36	1.56	—	—	1.56
Boston . . .	568,730	202	56	28.23	10.40	2.47	1.48	—	1.00
Worcester . .	127,337	34	16	20.58	20.58	2.94	—	—	2.94
Fall River . .	111,872	—	—	—	—	—	—	—	—
Lowell . . .	99,574	45	7	15.55	—	2.22	—	—	—
Cambridge . .	96,334	19	8	15.78	5.26	—	—	—	—
Lynn . . .	71,144	15	4	6.66	26.67	—	—	—	5.26
Lawrence . .	67,275	26	7	30.84	19.25	—	—	3.85	6.66
Springfield .	66,854	24	7	29.16	—	4.16	—	—	—
Somerville . .	65,882	20	6	40.00	15.00	—	—	—	15.00
New Bedford .	65,574	18	7	16.67	33.33	—	—	—	—
Holyoke . . .	48,065	13	5	—	—	—	—	—	—
Brookton . .	43,208	8	2	—	—	—	—	—	—
Haverhill . .	40,392	15	4	20.00	6.67	—	20.00	—	—
Salem . . .	36,567	9	—	11.11	—	—	—	—	—
Newton . . .	36,336	7	2	—	—	—	—	—	—
Malden . . .	35,890	10	4	10.00	—	—	—	—	—
Chelsea . . .	35,264	12	1	8.33	16.67	—	—	—	—
Fitchburg . .	33,848	7	4	14.30	14.30	14.30	—	—	—
Taunton . . .	32,759	8	—	37.50	—	—	—	—	—
Everett . . .	27,114	8	—	—	—	—	—	—	—
North Adams .	26,563	7	1	28.60	14.30	—	—	—	—
Gloucester . .	26,121	5	2	20.00	—	—	—	—	—
Quincy . . .	25,307	9	—	33.33	11.11	—	—	—	—
Waltham . . .	24,612	7	1	—	14.30	—	—	—	—
Pittsfield . .	22,811	3	1	—	33.33	—	—	—	—
Brookline . .	21,679	4	—	—	—	—	—	—	—
Chicopee . . .	20,390	2	1	50.00	—	—	—	—	—
Medford . . .	20,014	6	—	16.67	—	—	—	—	—
Newburyport .	14,478	6	—	33.33	16.67	—	—	—	—
Melrose . . .	13,384	4	—	—	—	—	—	—	—
Westfield . .	13,038	3	1	33.33	33.33	—	—	—	—
Attleboro . .	12,846	—	—	—	—	—	—	—	—
Adams . . .	12,813	—	—	—	—	—	—	—	—
Milford . . .	12,516	—	—	—	—	—	—	—	—
Frammingham .	12,109	5	—	—	—	—	—	—	—
Peabody . . .	11,967	—	—	—	—	—	—	—	—
Revere . . .	11,894	—	—	—	—	—	—	—	—
Gardner . . .	11,544	3	2	—	33.33	—	—	—	—
Weymouth . .	11,337	1	—	—	—	—	—	—	—
Southbridge .	10,838	5	—	40.00	60.00	—	—	—	—
Watertown . .	10,600	—	—	—	—	—	—	—	—
Plymouth . .	10,336	—	—	—	—	—	—	—	—

Deaths reported 3,097; under five years of age, 911; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 791, acute lung diseases 302, consumption 363, scarlet fever 47, whooping cough 31, cerebrospinal meningitis 17, smallpox 32, measles 52, diarrheal diseases 103.

From whooping cough, New York 19, Chicago 3, Philadelphia 2, Pittsburg 2, Boston 1, Worcester 2, Lawrence 1, Somerville 1. From measles, New York 21, Chicago 8, Philadelphia 12, Pittsburg 4, Boston 3, Lawrence 1, Haverhill 3. From erysipelas, New York 4, Chicago 2, Philadelphia 2, Pittsburg 1, Boston 2, Lowell 1, Somerville 1. From smallpox New York 19, Philadelphia 2, Pittsburg 3, Boston 5, Cambridge, Lawrence and Malden 1 each.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending May 24, the death-rate was 16.7. Deaths reported 4,757; acute diseases of the respiratory organs (London) 237, whooping cough 119, diphtheria 66, measles 157, smallpox 47, scarlet fever 51.

The death-rate ranged from 8.2 in Smethwick to 26.4 in Oldham; London 16.4, West Ham 12.3, Croydon 9.1, Brighton 16.3, Portsmouth 12.8, Southampton 15.0, Bristol 15.4, Birmingham 18.1, Leicester 14.5, Nottingham 15.7, Birkenhead 19.9, Liverpool 23.0, Manchester 19.2, Salford 17.9, Bradford 18.1, Leeds 15.4, Sheffield 16.1, Hull 14.6, Newcastle-on-Tyne 20.5, Cardiff 15.4.

## METEOROLOGICAL RECORD

For the week ending June 7, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer		Thermometer		Relative humidity		Direction of wind		Velocity of wind		Weather		Rainfall in inches.
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 P.M.	
June 1 . . .	30.42	64	79	50	54	61	58	S W	S W	7	15	F. C.	.05
June 2 . . .	30.08	72	87	58	70	62	66	W	S W	12	15	F. C.	.01
June 3 . . .	29.84	80	92	68	66	78	72	W	S W	16	10	F. C.	.01
June 4 . . .	29.78	88	84	51	81	82	82	S W	N E	15	20	O. C.	.01
June 5 . . .	30.13	54	60	49	72	64	68	E	S	8	5	O. C.	.01
June 6 . . .	30.18	59	68	50	56	50	53	N W	S	8	12	O. C.	.04
June 7 . . .	29.81	66	78	54	81	92	86	S W	S W	12	24	O. R.	.04
Mean for week.	30.03	78	54			69							.10

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall.  
Mean for week.

## RESIGNATION.

Dr. George F. Harding has resigned the position of dermatologist to the Carney Hospital.

## RECENT DEATHS.

CHARLES AUGUSTUS CARLTON, M.D., M.M.S.S., died in Salem June 12, 1902, aged sixty-one years.

GEORGE KING, M.D., M.M.S.S., died in Franklin April 24, 1902, aged seventy-nine years.

EDWARD NEWTON WHITTIER, M.D., M.M.S.S., died in Boston June 14, 1902, aged sixty years.

DR. OTIS FREEMAN, one of the oldest practising physicians in the United States, died at Freehold, N. J., on June 9. He was born in New Hampshire Dec. 30, 1809, and had practised for many years in New Jersey. During the Civil War he served with distinction as a surgeon in the United States Army, and it is said that after the battle of Sailors' Creek, Va., he worked for fourteen hours without cessation over the operating table.

DR. WILLIAM ARMISTED NELSON, a retired physician and a descendant of the Nelson family of Virginia, died at his home in New York on June 5. His great-grandfather was Thomas Nelson, Secretary of the Virginia Council, whose house at Yorktown was the one used by Lord Cornwallis as his headquarters. His grandfather was Col. William Nelson of the Revolutionary army, who took an active part in the siege of Yorktown, and his great uncle, Governor Nelson, was one of the signers of the Declaration of Independence. Dr. Nelson was born at Fredericksburgh, Va., in 1817, and was graduated from the medical department of the University of Pennsylvania in 1839. He received an appointment as assistant surgeon in the navy, and accompanied Commodore Perry on his expedition to Japan. In 1854 he was promoted to be full surgeon. Shortly before the Civil War he resigned, and afterwards served with distinction as surgeon in the Confederate Army throughout the war. After the close of the latter he settled in Missouri, where he practised for many years.

## BOOKS AND PAMPHLETS RECEIVED.

The Pennsylvania Society for the Prevention of Tuberculosis. Report for the year ending March 1, 1902.

Massachusetts Infant Asylum. Thirty-fifth Annual Report. Illustrated. Brookline: The Riverdale Press. 1902.

Chronic Myocarditis. I. Morbid Anatomy and Physical Signs. By J. H. Musser, M.D., of Philadelphia. Reprint. 1902.

A Memorial to J. T. Eskridge, M.D., and Clayton Parkhill, M.D. Published by the Members of the Denver and Arapahoe Medical Society. Illustrated. 1902.

The Artificial Feeding of Infants, including a Critical Review of the Recent Literature of the Subject. By Charles F. Judson, M.D., and J. Claxton Gittings, M.D. Philadelphia: J. B. Lippincott Co. 1902.

## Address.

THE PRESENT STATUS OF THE PRACTICE OF MEDICINE, AND THE URGENT NEED OF MORE STRINGENT APPLICATION OF HYGIENIC AND SANITARY LAWS.<sup>1</sup>

BY WILLARD S. EVERETT, M.D., HYDE PARK, MASS.

*Mr. President and Fellows of The Massachusetts Medical Society:* Such is our theme to-day. But you must not expect to listen to a scientific exposition, or an elucidation of some new or great principle or application of a principle, that is destined to overthrow prevailing customs or change the practices of men. You must not prepare yourselves to find a new or unexplored mine of intellectual wealth revealed. For these acquirements search must be made elsewhere.

But happily an exhibition of great learning is not needed now. The Shattuck lecture, with its marvelous wealth of scientific instruction, and with the exhaustive treatment of the subject, so ably presented by our honored guest; the various dissertations that have been given in the different sections, together with the comments and discussions by which they have been followed, have supplied all the intellectual and scientific aliment that is needed to redeem the exercises of these anniversary days from the charge of being useless or unprofitable, and this one hour may well be devoted to lighter themes.

And so I will invite you to be patient with me while I shall indulge in some of the reflections, and make some of the suggestions, and state some of the conclusions that have been evolved from the experiences and in the course of a practice extending over a period of nigh forty years. And as the events and transactions of those forty years pass in review before us like the shifting scenes of a panoramic landscape, memory will be busy with its visions and thought gravitates easily and naturally into meditative and reminiscent moods. And it is but the natural exercise of the ordinary functions of mental activity that leads to a general survey of the whole broad field that lies before us, and attempts to penetrate, even with our imperfect vision, some of the mysteries that lie beyond.

The changes of those years have been many. The men who were then in active life, and who were then giving character to the medical profession, are gone. But few of those who were in active practice when those forty years began, are with us now. New customs have supplanted the old. New practices have displaced those that prevailed at that time. New measures have been introduced. Former ones have become obsolete, and with the men that sustained them are gone to the shades. Altogether the former things have passed away. Changes are apparent everywhere, and but little remains except the memory, of those fleeting but eventful years. But medical science

has not stood still. Increased facilities for acquiring knowledge, improved instrumental aids, and industry and devotion have produced their results.

In some lines of human endeavor the advancement and the progress of medical science has been magnificent and great. In the department of surgery, and in all that pertains to the surgical art, its achievements and its victories have out-rivaled the dreams of visionaries of a few years ago. To us, from whom the future is hidden, it almost seems as though the limit had about been reached.

It is not easy for one endowed with only common faculties of observation and reason, to imagine in what direction improvement in surgical processes can much farther go. Yet others have thought so before our time. Ambrose Paré thought so once, and informed the world in 1579 that there seemed to be but little left for posterity to accomplish "but a certain small hope to add some things." His words sound to us like boasting. But the man who sent the torturing searing iron, the hot pincers and the blazing pitch to the museums of the antiquaries, to rest there forever as surgical appliances and as curiosities of the days gone by, by substituting for them the simple ligature for the arrest of hemorrhages, may well be pardoned for some self-glorification, for the changes he himself had wrought in surgical processes, though there yet remained such marvels of progression to be revealed in the future, that then were hidden from his dazzled gaze. We wonder, as a clearer perception of his position dawns upon us, if the medical antiquary of three and a half centuries hence, as he delves into the archives of our epoch, will indulge in the smile of complacency or of derision, with which we read his words.

And we wonder also what can happen that shall make the chasm between our own times and the centuries that are coming, as wide as that which separates us from the times of which he wrote. Yet we know not what a day may bring forth. Surprises in surgery are constantly occurring, and it may be confidently predicted that in some way or other a progressive future awaits the art of surgery yet.

In the department of medicine, however, though the changes have been many, if it is true that by their fruits ye shall know them, we cannot feel quite the same assurance that the real advances in dealing with diseases have been correspondingly great. Yet we do not forget the work that medical science has done. We do not forget Jenner, nor Pasteur, nor Koch, nor those who follow in the paths where they have led. We do not forget that great learning, immense wealth and untiring industry are laid upon its altar, and are expended without stint or limit in the study of diseases, and we are not unmindful of the result.

We do not forget the means that have been perfected for our assistance, nor the aids that have been placed in our hands. We do not forget all that we owe to the clinical thermometer,

<sup>1</sup>The Annual Discourse delivered before The Massachusetts Medical Society, June 11, 1902.



the use of which had never been suggested fifty, and scarcely forty years ago. We do not forget all that has been learned from urinary analyses, that were rarely thought to be essential then.

We do not forget the hypodermic needle, nor how opportunely or providentially the antitoxins have come to our aid. We do not forget the thyroid extract, by means of which the unsightly and distressing myxedema has been made to yield. We do not forget what the Röntgen rays are doing in making plain what was hitherto invisible, nor that their palliative, if not curative, action upon sarcoma and carcinoma and epithelioma are rapidly passing beyond the experimental stage.

We do not forget the improvement that followed when the indiscriminate use of the lancet yielded its place to milder measures or to gentler stimulation, nor the disgust that was avoided when the nauseating doses of a former period were so largely superseded by the triturate tablet and the sugar or gelatine coated pill.

And we do not forget the wonderful improvement in pharmaceutical preparations, that the progress of the times, as directed by medical science, has demanded, and that these latter days have ushered in; and contrasting them with the vile concoctions that were forced upon the sick and the suffering, in the days when crab's eyes and blind puppies, earthworms and human skulls, had a place in recognized formulæ, in standard pharmacopeias of the period, and a commercial value as staple articles in the catalogue of pharmaceutical supplies, we felicitate ourselves with great joy and gladness, that the lines have fallen to us in more pleasant places, and bless with sincerest gratitude our ancestral lineage that our existence was delayed to these later days.

And finally, we do not forget the great multitude of investigators that have so long been focusing their microscopic lenses upon every form of pathological condition, with the hope and determination of tracing the ultimate causes of every form of disease.

We do not forget that never in the history of medicine or of the world have the searchlights of science been cast more persistently or more determinedly upon these bewildering problems, to work out their solution, than in these later years.

Never have clearer heads or keener intellects or braver hearts grappled with these perplexing difficulties, either to find the way to overcome them or to demonstrate the impracticability of the attempt. Indeed, so far has science already led us, that the personal element in the profession is being largely eliminated from the account, and the oldtime independent thought, self-reliant judgment and prompt, decisive action — not always without their errors, it must be admitted, yet useful in many ways — that belonged to a former generation, are rapidly and it is to be feared altogether, disappearing; and where once the way seemed clear before us, and pathognomonic symptoms clearly and sharply defined; we now hesitate and falter, if we do not positively decline—

even while disease is rushing onward with increasing and dangerous rapidity — to render a diagnosis, until the revelations of the microscope or the bouillon cup have either exploded or sustained the views we have entertained. And we do not question their conclusions. We only learn to distrust our own.

And if there are those among the older practitioners who ask if the best interests of the sick and the dying are always subserved in this way; whether the accuracy of a mathematical demonstration is always secured by methods like these; if there are those who claim that habits of lifelong observation and years of experience at the bedside are entitled to some consideration still; if there are those who believe that the trained perception, the quick ear, the keen eye, the sensitive touch, that years of practice have intensified, if they have not perfected, are entitled to a place for practical purposes in the armamentarium of the physician that neither the exhibitions of the microscope nor the logic of the laboratory can fully supply, and that they will sometimes lead to just conclusions, before either the microscope or the laboratory can so prepare and adjust their specimens as to pronounce definitely upon the result; yet even these are willing to concede, when they do not conceal their misgivings, and while reserving to themselves the privileges of private judgment and independent action, do not hesitate to fall into line in the great procession that marches to the music of progression where the heralds of science blaze the way. And it is well. Heaven grant to these pioneers of science an unobstructed sway! Heaven grant to them abundant success to their labors! Heaven grant that their work may continue to prosper, until they shall find not only the germs of all diseases, but shall also discover the means that shall dislodge them from their place!

All honor to those noble men. All honor to those worthy ones who are denying themselves so many of the things that add to life's enjoyment, that they may devote their best years to this beneficent work. All honor to those who are teaching us the beginnings of disease. Let all encouragement be given them to continue in the paths they are pursuing, till they shall also teach us how to bring their work to a successful end. Let all praise be theirs for results already won. We honor them for their devotion to the work they have undertaken; we respect their conclusions; we follow their directions; we adopt their recommendations; we proclaim their fame while they are living, and rear monuments to commemorate and prolong their memories when they are gathered to their rest.

But the old conviction comes back to us still. If the purpose of study and of treatment is to cure disease, and so to promote the welfare of humanity, then the ultimate purpose of medicine is not yet in sight. When all our investigations are completed, when our studies and researches are done, when the improvements in management and the additions to our resources have either

demonstrated their value or failed in our hands, the grand object of curing disease by medication, so far at least as many diseases are concerned, is not gained.

Tuberculosis remains the same unconquered and unconquerable foe to human life that it has been always. And in cases where improvement has been noted, it has been accomplished less by medication than by hygienic means. Pneumonia swept away 5,282 victims in 1900 in Massachusetts alone. Typhoid fever remains typhoid fever still. And neither improved — or at least varied — methods of treatment, nor cold ablutions, nor chilling immersions, nor Widal tests, nor microscopic views, nor corpuscular computations, have perceptibly changed its character in any essential particulars, from the fatal and fearful affection that baffled the skill of the physician in the days of our predecessors, and that resists with equally stubborn obstinacy the best directed efforts of our own. It regards neither rank nor condition; it abates not one degree of its destructive energy, whether its visitation fall upon the heedless victim of his own carelessness and needless exposure, or on our own cherished and beloved governor, who relinquishes the chair of State and retires from the duties of the gubernatorial office long enough to come in here with us year after year, to honor us with his presence, and to speak to us words of encouragement and praise.

And the humiliating thought that adds the keenest pang to our affliction is that both the sanitarian and the medical profession are committed to the opinion that its place is in the catalogue of preventable disease. There were fifteen diseases whose fatality was greater in Massachusetts, in both 1890 and in 1899. Whether its rank throughout the country in those years was higher we do not know. But in 1896 Dr. Bradford tells us, in the Annual Address<sup>2</sup> for 1899, that it claimed 75,000 victims in the United States.

We know not and are not now considering "whether disease is a part of the plan of creation," but we know that existence is hedged round with so many unfavorable conditions, that danger surrounds us like an atmosphere from life's beginning to its close. In whatsoever paths our feet are guided, disease is everywhere present with us still.

We do all that medical science in the present state of its development suggests and all that experience teaches, to counteract the ills that beset us, that we are obliged to acknowledge we cannot prevent at present and do not always cure. We build hospitals in every city, and furnish them with every convenience and necessity for the care of the helpless and the sick. We secure to them the best attendance that the medical profession can supply. We build expensive laboratories, and equip them in liberal fashion with every useful appliance, in the hope that every new aspect as it makes its appearance, as well as every structural change, may be noted and assigned to its

appropriate place in the etiology of disease. We exhaust our knowledge of the pharmacopeia and the products of the earth, the sea and the atmosphere in devising new antidotes for the relief of whatsoever maladies afflict the children of men. We experiment with every new remedy or combination of remedies that is commended to our attention as possessing special adaptation to special diseases or uses, to the end that we may thoroughly test their virtues, and when they have disappointed us sufficiently we cast them aside. We invoke the aid of all the resources that can be made available or be supplied from any quarter, to counteract the ravages of those living organisms that science tells us are wasting life away. We dismember the body when its life has departed that we may subject its every tissue to a scrutiny that was impossible while its subject was living, to ascertain the ultimate structure as well as function of the minutest filament of muscular fibre or the smallest spiculæ of bone. Neither nerve tissue nor brain substance escapes us. Nothing is overlooked, and nothing satisfies until we have resolved the whole human structure to Virchow's universal cell, and located all our many troubles in the cellular transformations and atomic changes that have their origin there.

We stifle our feelings of humanity and pity, in the interest of science, and subject the lower orders of creation to direst suffering and agonizing death, and composedly study from their vicarious anguish the pathologic processes that, artificially induced in their less respected bodies, seem to be identical with the cellular changes that take place in the human system in the same disease, and in so doing, hope to learn from their distresses how to relieve our own.

We try to follow in the paths wherein the men of science lead us, though we may not fully comprehend their ways. We study the published reports of their proceedings, with the determination — if not with an entirely successful attempt — to master and appropriate to our own uses the lessons of wisdom that they teach us, and make in some measure their wealth of scientific lore our own.

We apply ourselves with diligence and assiduity to the mastery of the marvelous vocabulary and nomenclature that has been developed in the progress of the science, and tax our mental machinery to its limit, while we wrestle with the intricacies and technicalities of accurate scientific expression, till microbe and leucocyte, bacteria and bacillus, and spherical cell, and cylindrical cell, and spindle cell, and micrococcus, and streptococcus, and staphylococcus, and diplococcus, and spores, and ptomaines, and spirillum, and vibriones, become familiar, if not always distinctly differentiated or perfectly understood, terms.

We divide ourselves into schools and systems and specialties, and argue and dispute with one another in controversial earnestness, even to the verge of desperation and ill temper, in vainly attempting to discover or determine which modes of procedure of all that are presented are best.—

<sup>2</sup> Medical Communication, Massachusetts Medical Society, vol. viii, No. 1, 1899, Annual Address, p. 33.

for the patient's well being, if so it may be,—or, failing that, for bringing to our own exchequer the amplest return.

We do all this, and we do much more. We hold ourselves in readiness to respond to every call for medical assistance, however slight the occasion or attended with whatsoever of inconvenience or self-sacrifice it may be.

We sink into the depths of despondency and discouragement when death defeats our best endeavors, and hardly recover from our disappointment to a normal plane of hope and cheerfulness when—as does sometimes happen—we have the satisfaction of believing that we have been instrumental in prolonging a life. We grapple courageously and fearlessly with diseases of every description, however dangerous in their character they may be, as though there were neither contagion nor infection nor personal danger in the world.

We do all these things. We fight to the last to save our patients, but the arch-enemy is mightier than we. Disease and death will not be vanquished. They remain with us still. The fight with them goes on forever. It has been going on through all the centuries. It is going on still. The combat is never ended. The battle is never won. Our efforts to overcome them are thus far largely futile. Our most earnest endeavors to eradicate them are thus far at least partially in vain.

Men die—die in the vigor of useful and prosperous manhood; die when life's responsibilities are greatest; die when ties of affection are strongest; die when life seems most essential to the family and to the world. Youth and beauty are stricken by the fell destroyer, and go down to the silent chamber, ere yet the first taste of life has lost its exhilarating flavor, and fade out of existence ere yet the mildew of time has touched the hem of the garments that adorned their primal bloom. Fathers and mothers stand in hopeless but unavailing sorrow round the couch where the pride of their eyes and the joy of their hearts is breathing out its infantile and agonized existence, and gaze imploringly, beseechingly—and it may be reproachfully—into the face of the physician, whose countenance does not cheer them, whose word can yield them neither hope nor encouragement, and whose impotent hands are powerless to bring them relief. There is no need to overdraw the picture; but it is useless to keep the truth from sight.

Statistics might reinforce these statements, but everyone knows that they are true. Or if there are those who doubt them, let them search the registration reports, and review their own experiences for themselves. We are assured that the death-rate is diminishing, and gladly believe that it is true. But granting all that is claimed for increasing longevity, the rate is yet sufficiently high. The churchyards are constantly receiving their accessions, are multiplying in numbers everywhere, and are extending their areas; and because they are encroaching too largely on valuable territory, as well as becoming in themselves a

menace, the crematory fires are kindled and are blazing with fervent heat.

And this deplorable mortality is not confined to the aged, whom all know must die. Neither can it be attributed to a scarcity of physicians, for there are but eight states in all our broad land where there are 1,000 persons to each physician; and from thence the range is down to one in 420 in California, which seems of all the states in the Union, to be most abundantly supplied. In Massachusetts, in whose welfare we are more particularly interested, the ratio is one to every 539. Throughout the whole country there is, or was, in 1898, one registered physician to every 647 persons. And yet this excessive mortality exists, and it is not an accident of recent times. It is as ancient as the historic page. It was thus in the days of the psalmist. It was thus when the poet paraphrased his words:

"Tis but a few whose days amount  
To threescore years and ten."

It was true when these words were written, and it is true now. Disease is lurking everywhere. Life is imperilled at every step. The causes that induce the one and sustain the other seem mingled in unutterable and inextricable confusion, and overwhelm us in doubt and perplexity, from which, while existing conditions continue, we can look forward to no release.

The atmosphere that supports respiration is laden with pathogenic germs. The elements that supply nutrition become the messengers of death. The mother's kiss imparts contagion, and the hand that is grasped in the fervor of friendship finds contamination concealed in its clasp. The balmy Southern breezes that refresh and cool the fevered forehead waft their miasm from the Savannas of the southland, and the rugged northern tempest that imparts its energizing vigor brings its microbe with its chill. It was a microbe that sapped out the lifeblood of the blue-eyed and fair-haired creature who grew up with you in your boyhood, whose hand restrained you in the recklessness of adolescence, when even your mother's wishes were not always obeyed, and guided you into paths that have led to your present high estate, and whose loss left a void in your existence that the world has never filled, when she died; and it was a microbe also that caused the bread she ate to rise.

The same organisms that produce the ferment that keeps the earth in condition suitable for human habitation, are more destructive to those who dwell upon its surface than the rifle or the sword.

The insect world arrays itself with the forces that compass our destruction, and comes swarming round us in its myriad forms, not alone destroying our comfort with its annoying presence, but exposing us to dangers that are too subtle for our unsuspecting senses to recognize, but too powerful also, in their aggregate numbers, to be easily dispelled or controlled. And even the contemptible and villainous little mosquito, seemingly

too insignificant to be worthy of notice, and which we feel it to be beneath the dignity of manhood to recognize, even as an annoyance — if it is the truth that is told about him — has sins and transgressions little less diabolical than murder, laid to his charge. Some one may object to the use of the masculine pronoun here, because they tell us that it is the female, in this instance, that makes the mischief, as it was at creation's birth. But perhaps the generic title may be permitted here as being adapted to our present purpose, while we leave them to arrange the question of individual responsibility between themselves. Yet against the insidious attacks and incursions even of so despicable an enemy, we have neither defense nor protection, save only by calling to our relief, assistance, and even preservation, the whole gigantic machinery of the Standard Oil Trust, which, backed by all the Rockefeller millions, is able to furnish only a partial guarantee of immunity, in the ratio of fifteen square feet to the ounce. In this new David and Goliath contest the advantage is certainly again with the sling. Yet life has greater foes than he; for when the worst has been said against him, it must be admitted that at worst he is an open enemy. Whatever potentialities of mischief may be concealed within his diminutive figure, his attacks are never disguised. We can see him, we can hear him, we can feel his sting; and warned in this manner of his presence, we are given some opportunity to protect ourselves.

But the greatest foes of existence are those that do their work unseen and in silence, and that nothing less powerful than a microscope can render visible to human sight. Yet the devotees of science assure us that in these microscopic organisms are traced the elementary sources of all disease; and they assure us, also, that it is to counteract or prevent their ravages that the best energies of medical science can be most effectually applied.

(To be continued.)

### Original Article.

#### THE IMPORTANCE OF MILK ANALYSIS IN INFANT FEEDING.<sup>1</sup>

BY A. H. WENTWORTH, M.D., BOSTON,

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WITHIN the past few years various methods have been devised for the "modification" of cow's milk. The purpose of these "modifications" is to combine cream, milk, milk-sugar and water in such proportions as to produce mixtures containing any desired percentage of fat, milk-sugar and proteid. All of these methods have one thing in common, namely, they assume that

<sup>1</sup> From the Pharmacological Laboratory of the Harvard Medical School, and from the Chemical Laboratory of the Massachusetts General Hospital.

there is a fairly constant percentage of fat in a given number of ounces from the upper portion of a quart of cow's milk after the cream has risen. The following analyses show that this assumption is not true for individual milk, and that the percentage of fat in cow's milk varies very much.

TABLE I.

Upper 8 ounces.					Lower 24 ounces.			
Per cent.					Per cent.			
No.	Fat.	Sugar.	Proteids.	Ash.	Fat.	Sugar.	Proteids.	Ash.
1	13.60	4.	4.42	0.472	0.30	4.90	3.42	0.62
2	14.40	3.60	4.73	0.504	0.30	4.90	3.96	0.60
3	9.60	4.35	4.24	0.57	1.40	5.	3.80	0.60
4	15.20	4.40	4.66	0.52	0.70	5.15	4.02	0.63
5	11.	4.	4.52	0.65	0.70	4.90	3.69	0.58
6	14.	4.40	5.24	0.55				
7	8.20							
8	10.							
9	9.20							
10	12.20							
11	8.							
12	10.20							

ANALYSIS No. 1.

Upper 8 ounces.			Lower 24 ounces.		
Per cent.			Per cent.		
Fat	13.60		Fat	0.30	
Sugar	4.		Sugar	4.90	
Proteids	4.424		Proteids	3.418	
Mineral matter	0.472		Mineral matter	0.62	
Total solids	22.496		Total solids	9.238	
Water	77.504		Water	90.762	
	100.00			100.00	
Actual weight in grams.			Actual weight in grams.		
Milk	5.		Milk	5.	
Total solids	1.1248		Total solids	0.4619	
Mineral matter	0.0236		Mineral matter	0.031	

ANALYSIS No. 2.

Upper 8 ounces.			Lower 24 ounces.		
Per cent.			Per cent.		
Fat	14.40		Fat	0.30	
Sugar	3.60		Sugar	4.90	
Proteids	4.728		Proteids	3.966	
Mineral matter	0.504		Mineral matter	0.60	
Total solids	23.232		Total solids	9.766	
Water	76.768		Water	90.234	
	100.00			100.00	
Actual weight in grams.			Actual weight in grams.		
Milk	5.		Milk	5.	
Total solids	1.1616		Total solids	0.4883	
Mineral matter	0.0252		Mineral matter	0.03	

## ANALYSIS No. 3.

Upper 8 ounces.		Lower 24 ounces.	
	Per cent.		Per cent.
Fat	9.60	Fat	1.40
Sugar	4.35	Sugar	5.
Proteids	4.242	Proteids	3.808
Mineral matter	0.57	Mineral matter	0.60
Total solids	18.762	Total solids	10.808
Water	81.238	Water	89.192
	100.00		100.00
Actual weight in grams.		Actual weight in grams.	
Milk	5.	Milk	5.
Total solids	0.9381	Total solids	0.8404
Mineral matter	0.0286	Mineral matter	0.03

## ANALYSIS No. 4.

Upper 8 ounces.		Lower 24 ounces.	
	Per cent.		Per cent.
Fat	15.20	Fat	0.70
Sugar	4.40	Sugar	5.15
Proteids	4.664	Proteids	4.028
Mineral matter	0.52	Mineral matter	0.634
Total solids	24.784	Total solids	10.512
Water	75.216	Water	89.488
	100.00		100.00
Actual weight in grams.		Actual weight in grams.	
Milk	5.	Milk	5.
Total solids	1.2392	Total solids	0.5256
Mineral matter	0.026	Mineral matter	0.0317

## ANALYSIS No. 5.

Upper 8 ounces.		Lower 24 ounces.	
	Per cent.		Per cent.
Fat	11.	Fat	0.70
Sugar	4.	Sugar	4.90
Proteids	4.624	Proteids	3.702
Mineral matter	0.552	Mineral matter	0.588
Total solids	20.176	Total solids	9.89
Water	79.824	Water	90.11
	100.00		100.00
Actual weight in grams.		Actual weight in grams.	
Milk	5.	Milk	5.
Total solids	1.0088	Total solids	0.4947
Mineral matter	0.0276	Mineral matter	0.0294

## ANALYSIS No. 6.

Upper 8 ounces.		Lower 24 ounces.	
	Per cent.		Per cent.
Fat	14.		
Sugar	4.40		
Proteids	5.248		
Mineral matter	0.552		
Total solids	24.200		
Water	75.80		
	100.00		
Actual weight in grams.		Actual weight in grams.	
Milk	5.		
Total solids	1.21		
Mineral matter	0.0276		

It is instructive to notice in the complete analysis that the percentage of sugar in every instance is *higher in the lower milk* than in the cream, and that the percentage of proteids is *higher in the cream* than it is in the lower milk. These results agree with those quoted by Hammarsten.<sup>2</sup>

The above milks which were analyzed were bought from various milkmen in or about Boston. So far as I could learn they were from "night-milkings." At the time of analysis they were from fifteen to eighteen hours old. In milk numbered 3 the cream had not risen at the time of its delivery. The bottle containing this milk was packed in broken ice and remained there for five hours. At the end of that time the cream layer was distinct, yet notwithstanding this a considerable percentage of the cream had not separated from the lower milk, as was shown by the high percentage of fat in the lower portion of the milk. This failure of the cream to separate might have happened if the milk had been used for home modification. In all of the other specimens the cream layer was distinctly marked at the time the cream was removed. A quart of each specimen was used for analysis and in every case but one the upper eight ounces were removed. These eight ounces constituted the "cream" from which modifications would ordinarily be made.

From the six milks of which complete analysis was made, the lower twenty-four ounces were removed by siphonage. From the milks which were analyzed for fat alone, only the upper eight ounces were removed by means of a "chopin dipper." Specimen numbered 9 was sold as "cream" to a patient of mine with the statement that it contained 12% of fat. The buyer explained to the dealer that it was wanted for "home modification." The analysis showed 9.20% of fat.

## METHOD OF ANALYSIS.

The method used in making the analyses is one recommended by Dr. Charles Harrington in his book on "hygiene." I take this opportunity to thank him for the kind assistance which he has rendered me at different times.

*Estimation of percentage of fat; Babcock Method.*—Seventeen and six-tenths cc. of milk are measured by means of a graduated pipette, and introduced into a flask of special design which has a long, graduated neck. Then an equal volume of strong sulphuric acid, specific gravity 1,800, is added, and the two liquids are thoroughly mixed by gentle rotary motion. The flask is placed in a centrifugal machine and whirled for five minutes. Boiling water is added up to the base of the neck of the flask, and the flask is whirled for three minutes longer. After this, boiling water is added in sufficient quantity to bring the fat layer well up into the neck of the flask, and the whirling is continued for from one to two minutes longer. The percentage of fat is deter-

<sup>2</sup> Textbook of Physiological Chemistry, 1900, p. 386.

mined by reference to the scale. If the acid is too strong it may char the sugar and turn the fat dark, and thus interfere with the reading. If the acid is too weak the casein may not be held in solution, and particles become mixed with the fat and destroy the accuracy of the test. In order to insure accuracy the reading must be made as soon as possible after the whirling is completed. Otherwise the fat hardens in the tube and gives incorrect results. The remedy for this is the *cautious* application of heat, or of hot water, to the neck of the flask. When reading the percentage of fat the lower and upper borders of the fat should be held on a level with the eye, otherwise it is difficult to avoid an error of at least one-tenth of 1%.

*Estimation of percentage of sugar by polariscopy.*—Sixty-five and ninety-five hundredths gm. of milk, that is, twice the normal weight of lactose, are weighed in a glass flask graduated to 102.6 cc. The flask has a ground-glass stopper; 1 cc. of acid nitrate of mercury solution is added, and the contents of the flask are thoroughly mixed by shaking, after which distilled water is added to the mark 102.6 cc. The contents are thoroughly mixed and filtered through dry filter paper. The filtrate must be perfectly clear to make an accurate reading with the polariscope. A second reading should be made to control the first one.

The normal sucrose weight, that is to say, the amount of *sucrose*, which dissolved in water and made up to 100 cc. will show 100° on the scale when observed through a 200 mm. tube, is 26.048 gm. The weight, 65.95 gm., represents *twice* the normal *lactose* weight. The graduation, 102.6 cc., is adopted instead of 100 cc. because the dried, precipitated curd of a milk of average specific gravity has a bulk equal to the excess of 2.6 cc. more than 100 cc. Twice the normal lactose weight is used in order to lessen a possible error in the reading, that is, the error in reading is divided by two.

*Estimation of percentages of total solids, mineral matter and proteids.*—Five gm. of milk are weighed in a platinum dish. The weight of the dish is ascertained before each analysis. The milk is allowed to run into the dish from a pipette. This is done as rapidly as possible up to the last drop that is needed to make the weight 5. gm. Then one drop is added and any surplus is removed by means of a small piece of filter paper. In this way the loss of weight by evaporation is avoided, and an accurate balance is obtained. The milk is then evaporated to dryness over a steam bath. The dish is then placed in a thermostat heated to 100° C. and allowed to remain until the weight becomes constant. It is then placed in a dessicator and when cool it is weighed. The difference between this weight and the weight of the empty dish represents the total solids in the quantity of milk taken, and multiplied by twenty expresses the *percentage* of total solids in the sample. The dish containing the residue is then ignited in a bunsen flame until nothing remains but the mineral matter.

The dish is then placed in a dessicator, cooled and weighed. This weight less the weight of the empty dish gives the weight of mineral matter in the quantity of milk taken. The *percentage* is obtained by multiplying this result by twenty.

Two specimens were analyzed each time, so that one analysis should control the other.

Table II shows the number of ounces from the upper one-fourth of a quart of each of the milks analyzed in Table I that must be added to a twenty-ounce modification to make that modification contain 4% of fat.

TABLE II.

No.	Fat.	Cream.
1	13.6%	5 7-8 oz.
2	14.4%	5 4-8 oz.
3	9.6%	8 3-8 oz.
4	15.2%	5 2-8 oz.
5	11. %	7 2-8 oz.
6	14. %	5 6-8 oz.
7	8.2%	9 6-8 oz.
8	10. %	8 oz.
9	9.2%	8 6-8 oz.
10	12.2%	6 4-8 oz.
11	8. %	10 oz.
12	10.2%	7 7-8 oz.

Table III shows the percentage of fat which actually would be present in a twenty-ounce modification made from the upper one-fourth of a quart of each of the milks analyzed in Table I, if the usual rule were followed, which assumes that 10% of fat is present in the upper one-fourth of a quart of "set milk." Each modification on this basis is *estimated* to contain 4% of fat.

TABLE III.

No.	Fat in Cream.	Fat in Modification.
1	13.6%	5.44%
2	14.4%	5.76%
3	9.6%	3.84%
4	15.2%	6.08%
5	11. %	4.40%
6	14. %	5.60%
7	8.2%	3.28%
8	10. %	4. %
9	9.2%	3.68%
10	12.2%	4.88%
11	8. %	3.20%
12	10.2%	4.08%

In addition to the errors that can be avoided by analysis of the milk, it is necessary to consider



the errors dependent upon faulty modification. Unless explicit directions are given about the method of modification, mistakes are almost certain to occur. Exact directions should be given about the quantity to be removed from the top of the milk and the quantity to be used in the modification; the way in which the top milk should be removed; the way in which the milk sugar should be measured, whether packed down or shaken lightly into the measure.

The second column of Table III shows a difference of almost 100% in the amount of fat that would be present in "modifications" made from different creams when figured on a basis of 10% of fat in the "cream." Milk from the same source as each of the milks analyzed was used for home modification. In a number of cases the results were unsatisfactory, as might be expected from such great variation in the percentage of fat.

There is considerable variation in the degree of disturbance caused by too much fat in modified milk. Vigorous infants who are several months old may thrive in spite of it, but even these babies, as a rule, show some symptoms of digestive disturbance sooner or later. A common symptom is loss of appetite, the baby takes less and less food, and yet does not appear to be especially ill. In other cases some acute illness, such as a cold, is followed by symptoms of indigestion, and in these cases it often requires a much longer time than usual, often weeks or even months, before the digestive functions become normal again. Some cases have acute gastro-enteric disturbance when the percentage of fat is too high. This usually is not so serious, because the remedy is applied so much earlier.

In general it may be said that the most harm is done to infants a few weeks old. These cases make a bad start; they lose weight; have more or less vomiting or regurgitation, and usually do not digest their food well. The parents or the physician are very apt to try other foods, and in many cases a condition of atrophy results.

The results of too little fat in modifications of milk are usually not so serious so far as the mere lack of fat is concerned. The infants do not gain in weight as they should and they are apt to be constipated. A deficiency of fat in the food is recognized much sooner than an excess, because there is a general tendency to believe that an infant is hungry no matter what symptoms are present. This belief leads those in charge to increase the strength or the quantity of the food on very slight provocation, and therefore infants are not likely to be underfed for any length of time. A more serious objection to the use of milk which contains a low percentage of fat in the cream, for modification, is that it is impossible with it to prepare a modified milk containing a moderately high percentage of fat (over 3.50) combined with a low percentage of proteids.

It often happens that a low percentage of proteid is desired, combined with a moderately high percentage of fat; for example, a 4% of fat, 7%

of sugar, 1% of proteid; or 3.50% of fat, 6.50% of sugar, 1% of proteid. It does not matter in most of these cases if the percentage of proteid is a little over one, and as a matter of fact it has to be when modifications are made from "gravity" cream. It often does matter, however, if the percentage of proteid is 1.60 or 1.75. It requires so much of the cream containing a low percentage of fat to give the desired percentage of fat in the modification that the percentage of proteid is unavoidably high. The remedy for this is either to use a milk in which the upper one-fourth of a quart of the "set milk" contains at least 12% of fat, or what amounts to the same thing, to take off less than the upper one-fourth. Determine by analysis the percentage of fat in the upper five, six or seven ounces, as the case may be, from a quart, and use the number of ounces for modification that analyzes 12 or 13% of fat. This applies only to the cases in which a moderately high percentage of fat combined with a low percentage of proteid is needed.

In home modifications made from gravity cream it is customary to assume the presence of 4% of proteid, both in the cream and in the lower milk. Table IV enables a comparison to be made between the percentage of proteid *actually* present in a twenty-ounce modification with 4% of fat and the percentage of proteid *assumed* to be present in the same modification when the proteids are figured on a 4% basis. In those milks which have a high percentage of fat in the upper one-fourth, the discrepancy between the percentage of proteid in the modification figured at 4% of proteid in the cream and the *actual* percentage present in the modification, as shown by analysis of the cream, is not very great, because so little of the cream is required to give the desired percentage of fat in the modification. In those milks, on the other hand, in which the percentage of fat in the upper one-fourth is low, say from 8 to 10, the difference is marked and might be liable to cause digestive disturbances in many cases.

Table IV, based upon the six complete analyses in Table I, shows the percentage of proteids which would be present in a twenty-ounce modification made from each of the six milks, using as cream the upper one-fourth of each quart of milk after it had "set." Each modification is figured to contain 4% of fat.

TABLE IV.

No.	Proteids figured at 4%.	Proteids actually present.
1	1.17%	1.29%
2	1.10%	1.29%
3	1.67%	1.77%
4	1.05%	1.22%
5	1.45%	1.63%
6	1.15%	1.50%

(To be continued.)

### Clinical Department.

#### TYPHOID SPINE (SPONDYLITIS TYPHOSA ; PERISPONDYLITIS TYPHOSA).<sup>1</sup>

BY ELBRIDGE G. OUTLER, M.D., BOSTON,

Visiting Physician to the Massachusetts General Hospital.

THE term typhoid spine was first applied by Gibney to a condition of the spine resembling Potts' disease, which occasionally occurs after typhoid fever, but without the deformity which follows the former. The condition was thought by Gibney to be due to an inflammation of the structures surrounding the vertebræ, that is, a perispondylitis. The cases which he recorded were characterized by excessive pain and stiffness of the back. All save one made a good recovery. In this one slight impairment of the gait persisted.

This complication occurs more often during convalescence, though it may appear at any time between the beginning of convalescence and three months later, but some cases have been observed late in the fastigium at the time of the morning drop of the temperature. The patient complains of pain in the lumbar or sacral regions, perhaps after a slight blow or shock or jar, or independently of such injury. The chief symptoms are stiffness of the back, pain on movement and tenderness on pressure, the latter symptom being the least constant. In addition there are certain nervous manifestations, sometimes even hysterical. The physical examination aside from the tenderness mentioned reveals nothing. Fever is not usually present unless there be other complications. The prognosis is favorable, complete recovery following in most cases, though deformity (kyphosis) has been observed.

The disease, according to Gibney, Osler, Kühn<sup>2</sup> and Taylor,<sup>3</sup> is a spondylitis or a perispondylitis, though Osler considers that in most cases the condition is a neurosis. No post-mortem examination of the condition is on record so far as I know. The other lesions of bone which are recorded in the course of typhoid fever are periostitis and osteomyelitis, and the bacillus of Eberth has been discovered to be the source of the trouble in a large number of these cases. The staphylococcus pyogenes aureus has, however, been isolated as well in one case mentioned by Parsons.<sup>4</sup>

The treatment consists of rest in bed on the back and the application of a plaster or leather jacket to give support.

This case is reported because of its rarity and to secure a permanent place in the literature.

Henry Bohaker, age thirty-two, single; born in Nova Scotia, living in Manchester, Mass.; gardener. Entered the hospital Nov. 24, 1900, with a diagnosis of typhoid fever.

History as follows: Measles as a child; subject to headaches; otherwise always well. Constipa-

ted; appetite habitually good; denies venereal; no accidents.

*Present illness.*—Three weeks ago, that is, about Nov. 1, commenced to have sharp pains up and down back, groins and legs. Grew weak gradually; took to bed on 21st. No nose bleed or diarrhea; no vomiting; chilly at times. For a week has felt feverish, and worse in the last three days. Headache has persisted for three weeks. Slight cough, as he says, to clear out throat. Raises very little mucus; no palpitation. Moderate soreness in the abdomen a week ago; no swelling anywhere; sleeps poorly; passes normal amount of urine; bowels moved this morning; appetite poor.

*Physical examination.*—Well developed and nourished. Face flushed; apathetic; pupils equal and react; tongue dry and thickly coated. Prominent papillæ; teeth in excellent condition; throat clear. Chest shows no abnormal differences in expansion, fremitus, voice or respiration. Heart apex in fifth space, one-half inch inside nipple line. No enlargement to right; action regular, good force; soft systolic murmur at apex and transmitted to pulmonic area. Aortic and pulmonic second sounds equal. Pulse regular, good volume, soft, slightly dicrotic; artery not thickened. Abdomen full, soft, tympanitic, not tender. Few scars in the region of umbilicus from electric belt. Liver from fifth space to costal margin. Spleen not palpable; no rose spots; skin hot and dry; no edema, no increased glands; reflexes present, mastoids not tender. Whites, 5,000; hemoglobin, 65%; Widal negative.

Liquid enteric diet; lemon, glycerin and borax mouth wash; Doebel's spray every four hours. Baths as per schedule if temperature is 102.5° or more.

Nov. 25: Temperature remained steadily high with small drops with baths. Spleen not felt. Urine high, acid; specific gravity 1.025; large trace of albumin; chlorides diminished; sugar none; diazo present, bile none. Slight sediment, consists of a very few hyaline and fine granular casts, with few to many renal cells adherent. Occasionally normal blood, and small round squamous cells and leucocytes. 26th: Continues about the same. Whites, 6,000. Shivers considerably after bath. 27th: Considerable distension accompanied by pain above the pubes. An enema with turpentine and glycerin and rectal tube gave relief and three good results. Whites, 6,000. During evening patient vomited several curds of milk. Received albumin water only during night. 28th: Much distended; icebag to abdomen; omit nourishment. 29th: Still distended. 30th: Distended, face flushed and apathetic; icebag.

Dec. 1: Distended most of time. 2d: Abdomen slightly softer. 3d: Required catheterization at 1.30 A.M. and 11 A.M. Urine normal, acid; specific gravity, 1.018; very slight trace of albumin; chlorides diminished; slight sediment, rare hyaline cast, no blood; occasional round squamous cell and leucocyte. Incontinence of feces from the 5th to the 10th; pulse 120. On the 10th

<sup>1</sup> Read before the Clinical Section of the Suffolk District Medical Society April 16, 1903.

<sup>2</sup> Münch. Med. Woch., June 4, 1901.

<sup>3</sup> Philadelphia Medical Journal, Dec. 28, 1901.

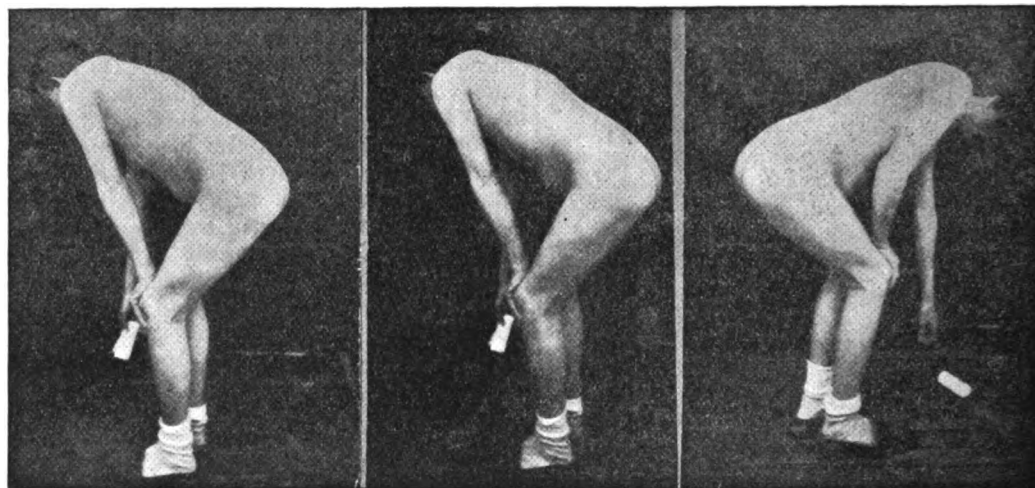
<sup>4</sup> Johns Hopkins Hospital Reports, Studies in Typhoid Fever.

required strychnia on account of poor pulse,  $\frac{1}{8}$  gr. every six hours. 17th: Stools streaked with dark blood. 19th: Some blood in the stool. 20th: Five bloody stools in twenty-four hours; pulse and temperature remain unaffected. 23d: Very delirious; pulse very poor, dicrotic. 26th: Marked delirium. 27th: Pad soaked with blood. 28th: There were two more hemorrhages. 31st: Fissure of the anus discovered which discharges pus freely.

Jan. 1: Urine normal, acid; specific gravity, 1,015; slight trace of albumin; chlorides diminished; slight sediment, consisting of a rare hyaline cast, no blood, few small and medium round occasionally pyriform cells, small squamous cells and leucocytes. 2d: Incontinence and retention continue. 12th: Condition better; passes urine voluntarily. 18th: Pain in ears; temperature normal. 19th: Right ear opened, large serous discharge. Back shows much tendency to hurt. (Apparently bed sore was a disturbing feature.)

since his discharge, so that he can hardly stoop forward. Can walk slowly without much trouble, but has a dull ache in the left iliac bone and lower lumbar region, on sitting down or standing still. Has to lie flat on his back for an hour or two after going to bed, because of pain in the bones. Similar but less severe trouble with right side. Kept about for ten days after discharge; then in bed for two weeks. Pain at this period was in the right side and so severe that sitting up was impossible. After this, pain shifted to the left, where it has been ever since. Slight cough for two weeks. Slight dyspnea. The jar of any sudden movement, such as stooping or going down stairs, causes much discomfort in lumbar regions. To raise from stooping, has to aid himself by his hands on his knees and thighs (see figures). No chills or fever. Steady gain in weight. Bowels moved today.

*Physical examination.*—Cheeks full and brown, considerable subcutaneous fat. Abdomen promi-



21st: Temperature up, ear much quieter; whites, 18,000. 23d: Whites, 11,400; much brighter. 27th: Ear discharges but little.

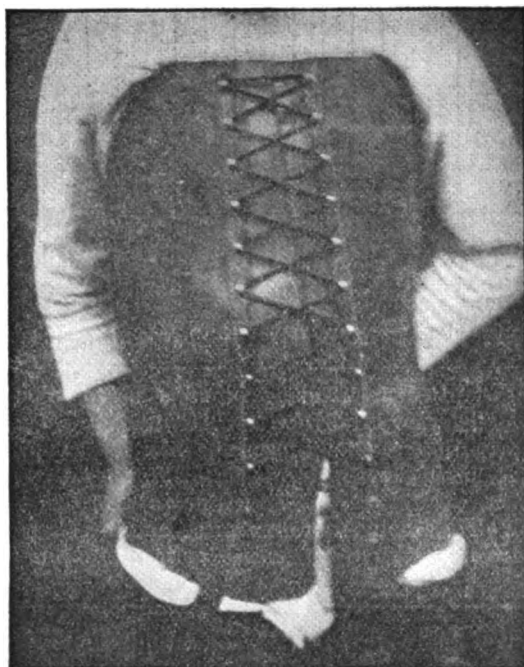
Feb. 5: Drum punctured and the patient improved up to the 16th, when patient complained of hunger, and urine was in the following condition: Specific gravity, 1,012; acid, pale, no albumin, diminution of chlorides, urates 26 gm.; sugar, bile and diazo none; no sediment; occasional squamous cell and leucocyte. 24th: Ear still discharging slightly. Was referred to Out-Patient Department for treatment of his back, which was nearly well, and to the Eye and Ear Infirmary for ear. Discharged well.

May 22, 1901: Patient at the hospital was diagnosed to have had typhoid fever from Nov. 24 to Feb. 24. When discharged he had a slight raised red fluctuating mass over the left sacroiliac spondylosis, without tenderness (furunculus). The temperature was normal for twenty-four days after the drop while in the hospital. The lumbar part of the back has felt weak ever

since. Left pupil slightly larger than right. Scars of turpentine stipes on the abdomen, applied during typhoid. Heart and lungs negative; liver fifth rib to costal margin; spleen undetermined. Abdomen generally tympanitic, not tender, no masses. Rises to sitting position with some difficulty; props himself up with hands. On leaning forward from upright position the whole spine moves as one piece, and patient points to the lumbar region as the seat of pain. Slight prominence of third, fourth and fifth lumbar and upper sacral vertebræ; no tenderness. With patient lying on abdomen, limitation of lumbar flexibility backward, with slight muscular spasm. Rectal examination negative; reflexes normal; blood: whites, 9,200, hemoglobin, 90%; Widal, instantaneous; extra diet; slept well, no change. Urine: Pale, acid, specific gravity, 1,012; albumin, slightest possible trace; chlorides normal; sugar, bile, diazo, negative; urea, 1.47%. Slight flocculent sediment; no casts, no blood, few squamous cells and leucocytes.

Diagnosis of typhoid periostitis of the spine was confirmed by Dr. J. E. Goldthwait, who advised fixation and observation. A radiograph showed on careful study no difference from that taken in a healthy subject.

May 25: Some pain, with movements in lower back and above iliac crests. 28th: Patient com-



plaints of pain in back, lumbar region, through the groins and lower abdomen, promoted by turning from side to side; not present when quiet.

June 2: Plaster applied for cast of spine; removed and sent to harness maker's. 12th: No

improvement. Occasionally waked from sleep by pain from turning in bed, which persists frequently for hours. 18th: Leather jacket fitted (see figures). 15th: Great relief of pain with jacket; patient can move about much more freely; stoops forward with greater freedom. To report. Discharged much relieved.

July 3: Reports that for first week after discharge felt about the same, with pain in the left lumbar region on movement and dull ache in the left groin. For the past week much better. No pain while lying down. Slight dull ache while walking about. Walked two miles this morning without more than slight discomfort.

A letter received from the patient is as follows:

August 10, 1901.

DEAR SIR: In reply to your note of the 9th, would say, for the first week after leaving the hospital I could not see any improvement whatever; after a week or so I could see a gain every day, less pain each day until it was all gone. I have had no pain in back for about three weeks or so. Yes, I am better than when I was at the hospital July 3. I was there on the 29th. Dr. Lord examined my back. He advised me to take the jacket off for a while every day. I have done so. I can get around very well without it, but the back is stiff and lame without the jacket. There is a dull ache in the groins, which runs down in the private parts, sometimes in both sides; most, when walking or standing. The parts sweat very much. If you could recommend anything for this I would be very thankful. I remain,

Yours very truly,

HENRY O. BOHAKER.

In a letter just received the patient gives his present condition:

April 22, 1902.

DEAR SIR: In reply to your note would say my condition is about the same as when I saw you last September. My general health is good; appetite good. My back seems to be all right except when stooping at work. The muscles of the back seem lame and stiff at times, and there is a slight pain down the groin, more so after hard work. I weigh about 150 pounds, 20 pounds more than I did before I was sick.

#### ANALYSIS OF TWENTY-SIX CASES OF TYPHOID SPINE.\*

BY FREDERICK T. LORD, M.D., BOSTON.

FROM 1889 to Jan. 1, 1902, twenty-six cases of typhoid spine have been reported in the literature. An analysis of these has been made in the hope that, in the survey of a number of cases, some general data may be obtained. Of the reported cases twenty-two of the twenty-six were in males.

To no especial factor, other than typhoid, can the occurrence of the spinal symptoms be ascribed. As a precipitating cause, however, mechanical strain is mentioned in six. Of these, two followed a fall,<sup>2</sup> two the reassumption of blacksmithing,<sup>13</sup> one stair climbing<sup>14</sup> and one twisting the spine while sawing.<sup>23</sup> The time of onset, as indicated by pain which was constantly the initial symptom,

\* Read before the Clinical Section of the Suffolk District Medical Society April 16, 1902.

varies within rather wide limits: from the latter part of the typhoid to three months after defervescence. In fourteen cases the pain started during the typhoid or within two weeks after it. In eight cases it occurred within six weeks, and in the remaining four within three months. The pain was usually severe, situated in the lumbar or dorsolumbar region, frequently radiating to the hips, less often to the iliocostal space, abdomen and thighs. Remissions and exacerbations in the pain were common. Tenderness was frequently associated with the pain. It was mentioned in sixteen cases. Swelling of the soft parts in the affected region or neighboring tissues was noted in six cases. Stiffness of the spinal column was mentioned in eight cases. This symptom occurred on rising or walking or even when lying in bed.

Involuntary urine and feces were present in one case.<sup>14</sup> In this the typhoid lasted for fifteen days. On the twenty-first day of the illness, a typhoid relapse began, ending on the twenty-

In seven cases the patellar reflex was increased. In two it was lost. In one there was an association of its absence with its previous increase.<sup>15</sup> Of the twenty-six cases, therefore, the knee jerk was disturbed in eight, and of these, five were associated with radiating pain. Muscular spasm was described as cramps in the legs in three cases in which it is mentioned. In one of these there was adductor spasm also.<sup>25</sup> Disturbed sensation was present in five cases, in four associated with a disturbance of the patellar reflex. Its site was in the lower extremity, and in one case also in the lower trunk.

Symptoms of hysteria or neurasthenia were noted in six cases. In four of the six cases, reported by Dr. Osler, the patients were said to be nervous or hysterical. In Lovett and Withington's case a diagnosis of hysteria was made by Dr. Prince. In W. J. Taylor's case there were stigmata of hysteria.

Dr. Osler's first case was neurasthenic.<sup>6</sup> There was pain in the back, radiating to the abdomen,

CASE NO.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	TOTAL.
Muscular spasm.....														1	1										1		3
Radiating pain.....						1	1		1			1	1		1			1	1	1				1			10
Disturbed sensation in lower extremity; hyperesthesia.....																				1			1				2
Anes.....																1							1				2
Paresthesia.....														1					1								2
Increased knee jerks.....						1 sl.	?						1			1 ank. clon.		1	1 sl.	1					1		7
Absent knee jerks.....													1	1													2
Kyphosis.....			1 sl.	1			1 sl.									1	1	1	1				1				8
Hysteria.....							1								1			1									3
Neurasthenia.....						1	1			1																	3
Rise of temperature.....	1												1	1	1	1		1	1			1	1	1			10

eighth. After an interval of nearly a week, the symptoms of typhoid spine were noted, pain in the lumbar region, with local tenderness and a rise of temperature for three or four weeks. The knee jerks were much diminished at first, later lost, to return again. There was also paresthesia in the legs, muscular cramps, besides involuntary urination and defecation. The process lasted for four or five months.

Symptoms referable to the nerve roots, such as muscular spasm, in other than the adjacent spinal muscles, radiating pain, disturbances of sensation and the patellar reflex, have been correlated in the table above, with the presence of a kyphosis, hysteria, neurasthenia and a rise of temperature.

As will be seen from the table, radiating pain was the most frequent of the nerve root symptoms, occurring in ten of the twenty-six cases. As might be expected, it was not infrequently associated with a disturbance of the knee jerks.

hips, and from the hip to the knee. The knee jerks were slightly increased. No organic change was found on physical examination. In his second case,<sup>7</sup> the patient was nervous and hysterical at times. There was pain radiating to the thighs and knee. The lower dorsal vertebræ were slightly prominent. The knee jerks were perhaps slightly increased. His next case<sup>8</sup> was nervous, perspiring easily, the hands and feet usually moist and cold. Local pain was practically the only symptom observed in this patient. His last example<sup>11</sup> likewise was nervous and apprehensive, with localized pain the most prominent symptom.

In Lovett and Withington's case,<sup>16</sup> though there were symptoms of hysteria, there was a marked kyphosis, involving the eleventh and twelfth dorsal and first lumbar vertebræ. Pain, tenderness and muscular spasm in the affected region were prominent symptoms. There were also disturbances of the reflexes and of sensation.

W. J. Taylor's case,<sup>19</sup> with stigmata of hysteria, had also a very distinct posterior deformity in the lumbar region, with thickening and rigidity. The right hip was painful, the right thigh numb to the knee, and the knee jerks slightly increased.

In the last two mentioned cases, Lovett and Withington's<sup>16</sup> and Taylor's,<sup>19</sup> the nerve root symptoms seem more plausibly the result of perispondylitis than of hysteria.

In Dr. Osler's second case<sup>7</sup> there was slight prominence of the lower dorsal vertebrae, and it seems natural to infer a pathological process, even though there was a nervous and hysterical element at times, in consideration of the association of nervous symptoms and deformity in Lovett and Withington's and Taylor's cases.

The most interesting data concern the presence of a kyphosis, for from this, in connection with the nerve root symptoms, the suspicion of an organic basis for the process is as far as may be from the clinical signs confirmed. There is no mention of spinal deformity in ten cases. It is definitely stated as not present in eight and described in eight cases. In two of these it is said to be slight. In all but one<sup>22</sup> it involved several vertebrae. In this case it seems to have been confined to the first lumbar vertebra alone. The kyphosis in Gibney's Austrian Tyrol case was cervical, in all the others it was in the lower dorsal or lumbar region or both. As Dr. Gibney's case of the cabman in the Austrian Tyrol deviates from the type of the disease as seen in the other reported cases, its inclusion in the series may properly be questioned. This man, age 45, had what his physician called typhoid at twenty-two. The typhoid lasted four weeks; then after a few days he began to have pain in the neck. Deformity developed, and this with torticollis had persisted for twenty-three years. Sufficient evidence for its exclusion seems lacking.

Scoliosis was present in two cases.<sup>23 24</sup> Both these cases are reported by Neisser. In the first the scoliosis was associated with a kyphosis; in the second the scoliosis was the only spinal curvature.

The temperature was not mentioned in ten cases. It was stated as normal in six, elevated in ten. Of the ten cases with an elevated temperature, three had complications which might have explained a rise. Of the remaining seven cases, the temperature in two<sup>23 24</sup> ranged from 101.3° to 103.1° for a period of four and two months respectively.

The duration of the acute symptoms was not stated in four cases. In Gibney's Austrian Tyrol case the acute symptoms lasted for two years. Of the remaining twenty-one cases, the shortest period was fifteen days, the longest thirteen months. The average duration was about four and one-half months.

Relapse after an interval of freedom occurred in three cases.<sup>5 6 12</sup> Its occurrence is not at variance with the course of other typhoid complications or sequelæ. For example, Dr. H. C. Parsons, in the Johns Hopkins Hospital Report, 1895, vol.

v, page 438, reports the appearance, subsidence and reappearance of a costal typhoid node.

The most satisfactory treatment has been rest in the horizontal position and the application of a plaster jacket, immobilizing the spine as nearly as possible, or plaster may be used as a model and a leather jacket, laced in front, prove more convenient.

The prognosis is good.

In general, the pathology of the process seems most reasonably a perispondylitis or spondylitis or both. A few of the cases may be neuroses. The coexistence of a deformity and nervous symptoms in one-half of the neurotic cases suggests that all the neurotic cases may be organic as well. Localized pain was present in all the twenty-six cases. It was associated with local tenderness in sixteen. Stiffness of the spinal column was noted in eight. These symptoms, taken together with radiating pain in ten cases, of disturbed knee jerks in eight and the association of these two in five, with muscular spasm in other than the adjacent spinal muscles in three, and disturbed sensation in the distribution of the spinal nerves in five, suggest the involvement of the nerve roots in a periostitis. A rise of temperature in seven, without other cause than the spinal lesion, is still further suggestive of organic trouble. The existence of kyphosis in eight cases seems to confirm the organic character of the nerve root symptoms, and definitely indicate bony as well as periosteal involvement.

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THE HUXLEY LECTURE.—The Huxley Lecture, which is given at the Charing Cross Hospital, London, will be delivered this year by Dr. William H. Welch of Baltimore.



# SOME CASES OF MALARIA ACCOMPANIED BY ACUTE ABDOMINAL SYMPTOMS.<sup>1</sup>

BY JAMES M. JACKSON, M.D., BOSTON.

I HAVE asked permission to report a few cases of malaria, because they seemed to me very remarkable, in which the chief symptom has been abdominal pain of such intensity as to warrant the diagnosis of peritonitis or appendicitis. It is not uncommon to have some abdominal pain at time of the chill, but it is certainly very unusual to have severe cramps in the abdomen preceding, as in one case, for three weeks the onset of the chill.

The first case is that of Nellie C., age thirty, married, living in Somerville. Always well, and no history of malaria previous to present attack.

*Present illness.*—Three weeks ago suddenly taken ill with diarrhea, steady pain, attended with severe cramps in lower abdomen, and not localized on either side. For first twenty-four hours vomited continuously, but since then has only vomited a few times. Cough with whitish expectoration for past week. For past three days symptoms have been much worse, the pain in abdomen very severe and accompanied by hard cramps. Had a chill day before yesterday and one today. Tenderness over lower abdomen, perhaps more marked on left than right. No distention of abdomen and walls not tense. By vagina nothing abnormal made out except marked tenderness in vault, particularly on the left. Spleen not to be felt and liver to be felt one finger-breadth below margin of ribs.

Patient was sent to hospital by Dr. H. A. Lothrop, for some obscure abdominal trouble, and Dr. F. B. Harrington summoned. Preparations were made for operation, but in the meantime the blood had been looked at, as a matter of routine. Plasmodia were found and the case was transferred to the medical side, where, under quinin, all symptoms, even cough, disappeared, and she was discharged well in two weeks.

This is a very unusual case, I think, and shows the advantage of a very careful examination, especially in cases where there is even the least doubt about the diagnosis. The diarrhea, pain and cramps in the lower abdomen, the vomiting lasting over a period of three weeks, followed by two chills and a collapsed condition, certainly point to a severe abdominal disorder of some sort. The diagnosis of appendicitis or a septic peritonitis was certainly warranted. Of course, on examination, only general tenderness was made out, and no localized tumor was felt. Moreover, there was no rigidity of the abdominal wall, which one would as a rule expect with a peritoneal process, but how often it happens in a septic peritonitis that no rigidity or tenderness in the abdomen is felt.

Dr. Lothrop has kindly given me a brief statement of the case as he saw it on the morning of entrance to the hospital: When called to case he

found patient in high fever, cyanotic, perspiring profusely, pulse rapid and very weak. Patient had been vomiting all day. Whole abdomen was distended and tense, with tenderness especially marked in the right iliac fossa. Patient appeared to have a mortal sickness. Dr. Lothrop's diagnosis at the time was appendicitis, perforation and general peritonitis. He saw the case later in the day, after admission to hospital. By that time the condition had improved and the abdominal symptoms had almost disappeared, so that he immediately retracted his diagnosis, and the finding of the plasmodia settled the question at once.

The second case is likewise remarkable in that the patient was brought to the accident room as an emergency, with a diagnosis of acute peritonitis. An abstract of the history is as follows:

Sophia H., age twenty-four, married; born in Norway, resident of Arlington.

*Past history.*—Always well. No previous history of malaria. No disorder of catamenia.

*Present illness.*—For three weeks has been feeling poorly. Ten days ago she thinks she caught cold, and complained of general malaise, headache, backache, chilly sensation, and vomited several times. Grew worse steadily, and went to bed five days ago, complaining chiefly of great prostration, vomiting and severe general abdominal pains. Two days ago tried to walk, when she was seized with vomiting and increase of abdominal pain. Went back to bed, and for the first time had a chill. Bowels were constipated and patient unable to sleep. She was brought to the accident room as an emergency and the surgeon sent for.

*Physical examination.*—Well developed and nourished. Face pale, herpes on lip; tongue moist, pale and clean; pulse rapid, small volume and weak; lungs normal. Heart: Slight systolic murmur at apex, otherwise normal. Abdomen not distended, not tender, covered with eruption resembling acne. No rose spots; liver normal in size. Spleen to be felt on deep inspiration. The history of general abdominal pain, vomiting, great prostration and chill, and the appearance of the patient at the time, made the attending surgeon feel that this was probably a case of septic peritonitis, but at the same time the size of the spleen made it seem advisable to wait until the blood could be looked at. Examination of fresh smears showed many full-grown plasmodia of tertian type.

Patient was transferred to medical side and recovered shortly under quinin.

The third case, Mrs. N., was admitted to hospital as an emergency for operation. Diagnosis made outside was "general peritonitis." Patient lives in Boston.

*Previous history.*—Always well, except for malaria seven years ago, while living in Hyde Park, and an occasional slight attack of rheumatism. Six years ago was operated on for fissure in ano. Three weeks ago began to feel weak and "miserable," as she expressed it. For past ten days headache and vomiting. Six days ago

<sup>1</sup> Read before the Clinical Section of the Suffolk District Medical Society April 16, 1902.

went to bed on account of great weakness, frontal headache, vomiting, pain in epigastrium, and fever. Four days ago pain in epigastrium became very severe and lasted all day. Abdomen became very tender, especially in the upper part. Toward evening pain became intense, requiring morphin. At 9 p.m. patient had chill (this being the first), high fever, sweating, and pain in abdomen became even more severe and general in character. Yesterday, that is, the day before entrance to the hospital, was more comfortable, but could retain no food, and pain in abdomen continued as before. Toward evening she became delirious and complained always of pain in the abdomen, more marked above the umbilicus; bowels constipated. This morning patient seemed very low, dull and stupid, chill at 10.30, temperature rising to 105°, pulse 132, respiration 32, at 1.30 p.m., when patient was transferred in great haste to the hospital.

The physical examination at time of entrance was as follows: Dark complexion, yellowish tinge to sclera; well nourished; pupils react; tongue slightly coated; speaks little; evidently in pain; knees drawn up; pulse regular, fair volume; lungs normal. Heart: Apex sound loudest in fifth space, one and one-half inches within nipple; no murmurs; no enlargement; spleen enlarged by percussion, edge to be felt on deep inspiration; tenderness in epigastrium on pressure; no dullness; no localized spots of tenderness in lower abdomen; no rose spots; patella and cutaneous reflexes present. Plasmodia malarie found in blood in very small numbers (two organisms in three slides) at 4 p.m.; white count, 8,900. Patient was transferred to medical side, and under quinin the symptoms almost entirely disappeared in the next two days.

Here, again, a case of malaria was sent to the accident room as an emergency, by a very competent and experienced physician, with a diagnosis of peritonitis of unknown origin. The patient was certainly very ill, and the surgeon would have been justified in exploring the abdomen. That the white count showed but 8,900 did not argue against peritonitis, but this with the enlargement of spleen led to a more careful examination of its blood and to the finding of plasmodia malarie.

The following case is more complicated, as a definite lesion was found which would explain the presence of pain, but there are many points in common with the other cases, and the question arises whether the malarial organisms ever take any part in lighting up an old inflammation.

Minnie S., age 26, married; born in Massachusetts and lives in Brighton.

*Previous history.*—Can recall no illness in childhood. Five years ago, severe sunstroke, unconscious for seven hours. Since then has suffered from headache about half of the time. Two years ago had prolapse of womb following confinement. From time of last confinement (ten months ago) has had more or less pain in right iliac and pelvic regions.

*Present illness.*—On June 17, 18, 20, 22 and July 4 had chills followed by fever, which ceased after considerable quinin was taken. Then perfectly well till July 15, when she woke with cramps in right lower abdomen. Nausea without vomiting; no chills, no fever, no headache. July 16 could not stand on account of pain in right iliac region. Intense frontal headache and pain in eyes; no chills, no vomiting. Required morphin for pain. July 17: Pain in lower abdomen worse. Very weak and exhausted, fainted several times; frontal headache; chill at 2 p.m., lasting thirty minutes, followed by sweating and slight fever; vomited soon after. Passed a comfortable night. July 18: Soreness in right iliac region but no sharp pain. No chill, headache or fever. July 19: Was sent to the hospital with diagnosis of pelvic peritonitis. Physical examination of abdomen showed spleen enlarged; edge felt. Tenderness and resistance in right iliac region.

*Vaginal examination.*—Cervix very large, not soft; large laceration, not tender. Distinct resistance on right side, with tenderness, giving the impression of a cellulitis. Plasmodia found in blood at 6.30 p.m. All fully developed pigmented forms in active motion. 10.30 p.m.: Only hyaline bodies and young forms seen, with little pigment. Whites, 5,100.

In eight days the patient was well and only a slight resistance on the right of the uterus was to be felt. The patient had undoubtedly a pelvic peritonitis, but whether this was only a coincidence or whether the malarial organism had any part in starting it up is of course a question. All symptoms disappeared shortly under quinin, and probably rest in bed was all that was needed to relieve the pelvic condition.

The fifth case came to the Out-Patient Department with a well-marked malaria. He volunteered the following statement, which is rather interesting:

Howard C., age 25, married; conductor; residence, Cambridge. Has been under treatment for malaria, but of late the chills have been attended with great pain in the abdomen, not localized, but general. Pain persists for several hours after the chill ceases, and always leaves him with considerable tenderness in the epigastrium. No vomiting; bowels rather constipated.

The last case, that of Benjamin E., was attacked with severe pain in head three days before entrance. Next day seized with severe cramps in abdomen, which became gradually worse till just before entrance, when he had an attack of vomiting, followed by chill and fever. The symptoms in the case were not as severe as the others, and in light of past experience, the blood was carefully looked at before summoning the surgeon, and the cause of the trouble was found.

Two people, according to the *Philadelphia Medical Journal*, recently detained at the Reception Hospital, North Brother's Island, and pest-house in Flatbush, on account of alleged smallpox, have sued the city for damages.

## THE DIAGNOSIS OF MALARIA BY STAINED SPECIMENS OF BLOOD.<sup>1</sup>

BY H. F. HEWES, M.D., BOSTON.

THESE cases of malaria with atypical symptomatology, reported by Dr. Jackson, emphasize very forcibly one point in connection with the practice of medicine, namely, the necessity of the examination of the blood as a routine practice in all conditions of disease of doubtful diagnosis; or, at all events, in all such conditions where pyrexia is present. As a rule, such an examination will be of value simply in a negative way, showing that we have no malaria, no anemia or no condition in which leucocytosis is a feature. In many cases, however, we shall come upon, expectedly or unexpectedly, some abnormal blood feature, a leucocytosis, an eosinophilia, a marked anemia, the finding of which will be of great aid in the diagnosis. And in some cases the finding of the malarial parasite or the filaria will give us an absolute diagnosis.

The utilization of this method of examination in conditions where malaria is a suspected or possible diagnosis is not at the present time as general as correct practice demands. This negligence has heretofore had some excuse. By the method of examination of a fresh specimen of blood or by the methods of examination of stained specimens which have existed up to the present, the finding of the parasite frequently, if not always, necessitated in the hands of anybody but an expert the obtaining of the specimen of blood at a period near the time of the paroxysm when the parasite (tertian) appeared in its fully developed pigmented form in the blood. This was not possible in the routine of cases.

Today, however, we have methods of staining blood which enables us to recognize the parasite at whatever stage of development it may be. I refer to the eosin-polychrome-methylene-blue staining method which Leishman has constructed by a combination of the Romanowsky stain and Jenner's method of solution in and fixation by methyl alcohol, or to the equally efficient but more complicated adaptation of the same Romanowsky method devised by Nocht. These methods, especially the former, are so simple in application as to be feasible for the busy practitioner if he have simply an elementary knowledge of staining procedures.

When stained by these methods the malarial organism, whatever its type or stage of development, always shows in its substance a dark red or purple red chromatin granule. It is this granule which serves to distinguish the blue staining intracorporeal plasmodium from any other basic staining substance which may be in the blood.

I have pictured here on the board the appearance of the malarial organism in its various phases of development as it appears in stained specimens. As you see, the organism has in all cases the following general characteristics: It appears as a

<sup>1</sup> Read before the Clinical Section of the Suffolk District Medical Society, April 16, 1902.

blue staining intracorporeal body, having, according to its stage of development, a spherical, or ring, or spider-like shape, and contains, if young, no pigment, if advanced, many pigment granules. In the substance of each organism, separated by a clear zone from the rest of the substances, is a red-staining granule, or a group of such granules.

A more detailed description of the appearances of the malarial organisms when stained by this method, as well as a description of the makeup of the stain and the manner of its use, will be found in Dr. Wright's article on the subject in the *Journal of Medical Research*. Dr. Wright has introduced a modification in the preparation of the stain which simplifies its manufacture over the original Leishman method.

With the possession of these accurate and simple methods of blood staining for malarial parasites,—methods which are at the same time useful for the other purposes of blood examination, the recognition of leucocytosis in its various forms, of pernicious anemia, of the granular stiffening of lead poisoning, and the anemias,—there can be in future no excuse for the failure to make diagnosis of active malaria through neglect to examine the blood, or indeed failure to get the record of the blood finding in any case of doubtful character, whatsoever its nature.

## Reports of Societies.

### THE MEDICAL ASSOCIATION OF THE GREATER CITY OF NEW YORK.

(Concluded from No. 25, p. 672.)

STATED meeting April 14, 1902, the president, DR. ANDREW H. SMITH, in the chair.

The time of exposure depends primarily upon the intensity of the x-radiation. Our effort should be to standardize every step of treatment. If we use a coil we must know the volts and amperes and the number of interruptions per second; if a static machine, the number and diameter of the plates and the number of revolutions per minute. With these data established, we should adopt a standard intensity of x-radiation, a standard distance of the tube from the patient's skin, and a standard duration and frequency of application. Roughly speaking, he said, he selected a tube just beginning to be hard (corresponding to from five to seven inches spark-gap of the coil) giving a good photographic picture of the hand in one minute, at a distance of two feet, and giving equally clearly a good fluoroscopic outline of the skeleton of an average man at the same distance. He selected a distance of eight inches and a duration of from six to eight minutes, and gave a treatment three times a week. In this manner, where sound skin intervened, he usually got a dermatitis of a mild type in from one to two weeks. Instead of stopping treatment when this appeared, he went right on (often shifting, however, the

central focus of the tube) until he had converted a bright erythema into a brown, or even blackish, "tan." The patient once properly "tanned," it was extraordinary how great an intensity of x-ray might be administered. To some of his patients, whose skin was now as black as a dark mulatto's, he was giving treatments of from eleven to fifteen minutes three times a week, with no harm to the skin. He wished distinctly, however, to put himself on record as refusing to advise anyone else to "tan" a patient with the x-ray. It was mainly a question of systematic and standardized technique, and each operator must decide for himself whether the process should be adopted. It was commonly advised to cease treatment as soon as dermatitis set in, but in cases of internal cancer it would be impossible to succeed unless we could continue in spite of the erythema, and tan the patient in the way described. ■

He said he could not protest too strongly against the submission of a patient to x-ray treatment by unskilled hands. It is the state of the vacuum and the consequent quality of the radiation produced which is both the fickle and the dangerous feature of the administration. There is always some danger, even in skilled hands, and likewise uncertainty enough, but in unskilled hands the danger is as great as the report of the results obtained is valueless. In such hands a negative result has no meaning, an affirmative result is an accident; and he thought it would be wise if a school of instruction for x-ray workers could be established.

In exterior cases, such as epithelioma, papilloma, rodent ulcer, lupus, etc., a shield protecting the sound skin was desirable, though he saw no reason for insulating it. The indications of experience thus far obtained in this class of cases justify a resort, as a rule, to the x-ray, in preference to any other treatment. A small and isolated epithelioma may sometimes be preferably cut or scraped out or treated with caustics, but cases of large areas of destructive epithelioma and lupus have already been reported in great number where nothing yet known except the x-ray would have saved the patient from extensive surgical mutilation and possible death. In interior cases, such as osteosarcoma and carcinoma of the breast and other tumors either immediately or remotely underlying the skin, the high vacuum tube, with its deeply penetrating x-ray, is indicated. In this class of cases he said he had no hesitation in claiming that the x-ray has an immediate and continuous effect of relief from pain and of circumscription and retrogression of the disease. In a case of inoperable abdominal sarcoma referred to him by Dr. L. Weber the gnawing, constant pain entirely ceased within the first week. The tumor is now so much reduced in size that it can scarcely be felt by palpation, while fluoroscopic examination shows it to be actually reduced more than one-half. In a similar case which he is now treating, the pain ceased at once, and the patient can walk about and attend to business. In two cases of malignant growth at the pyloric orifice

of the stomach the pain has entirely ceased, and the patients can, for the first time in many months, take solid food. In two cases of epithelioma within the fauces, the sensations of burning and discomfort have been relieved, the tumors are reducing in size, and, to say the least, an advancing disease is arrested in its progress. Whether these cases will be cured or not the treatment has not as yet extended over a sufficient period of time to determine. In carcinoma of the breast the results thus far were most hopeful, although unfortunately, of a large number under treatment, all but one were of long standing. One recurrent carcinomatous tumor of the breast he had reported cured, and it remains cured to date.

Dr. Morton is at present treating a case of appendicitis in which the patient was suffering daily pain, and an immediate operation had been advised. After the first week there were no further symptoms of the disease except one mild attack without pain. As further instances of interior effect he mentioned two cases of melancholia which he had cured by x-raying the brain, and a case of tic douloureux (which had undergone two operations to remove the nerves) which he had relieved by x-raying the Gasserian ganglion. There was, therefore, no question in his mind that the x-ray should be employed in internal cancer and in other diseases internally located.

In so-called operable cases of cancer, and particularly in carcinoma of the breast, the propriety of employing the x-ray will no doubt long be debatable ground. For his own part, he now believed that no case should be operated upon until it had first been treated by the x-ray. The earlier a case can be treated the more rapidly will it yield to the influence of the x-ray. Circumscription of the area of invading disease, retrogression of the growth, and relief from suffering can be confidently predicted. So long as a malignant growth continues to improve under x-ray treatment, no operation is necessary. Of the two, the x-ray and an operation, the former appeals to the patient as an infinitely preferable procedure, and, should it fail, no time has been lost. In operable cases where infection (distribution of the disease) has once visibly or palpably occurred, there was in his mind no shadow of doubt that the x-ray should be first employed. In relation to the propriety of using the x-ray before an operation, he said he could contribute an interesting observation. In a case of rapidly advancing epithelioma of the upper jaw a bright, beef-red, diffused coloration extended almost across the mucous membrane of the roof of the mouth. At the third treatment a clean line of demarkation appeared just to one side of the median line presenting a characteristic serpentine edge. Here clearly the disease was circumscribed, and if operation should be deemed advisable, this outline would unquestionably be of the greatest service to the surgeon in making his work complete. So, likewise, in all malignant tumors, their outlying areas contract in extent and the tumors, so to speak, kemalize, growing harder and smaller.

That the x-ray should be used after an operation would seem to be also a justifiable conclusion. It can search out foci and areas of infection unreached by the knife and unsuspected by the operator. As to inoperable cases of cancer, there can be no discussion. There is but one simple axiom: so long as improvement continues, continue the treatment.

Under proper conditions of treatment the x-ray is capable of building up tissue. Dr. Morton related a case illustrative of this point, and also stated that in the two cases of melancholia mentioned in which the brain was treated, the hair, which had previously been dry and scant, became glossy, abundant and healthy.

#### DISCUSSION.

DR. C. L. LEONARD of Philadelphia said that his remarks might perhaps be of service in bringing out something on the other side. The employment of an unknown agent in an empirical method has resulted in the production of beneficial results in cases of malignant disease. The application, in a similar manner, of the electricity developed by the static machine or the induction coil, in the production of Röntgen rays, but without the Röntgen tube or generator, has resulted in the production of equally beneficial results. Since these results were produced with the same apparatus, but without the Röntgen tube, the therapeutic agent must be considered some other than the Röntgen rays, until they have been shown to possess additional therapeutic value. It is highly probable that the therapeutic agent is electricity employed in this form, since the experimentation of reliable men, previous to the discovery of the Röntgen rays, demonstrated that electricity is capable of modifying the growth of malignant disease. If the successful treatment of all superficial and deep-seated growths is to be developed along this line of therapeutic progress, the actual agents employed must be recognized, and their separate value determined. Crude empiricism and the treatment of disease by one agent under the guise of another will never lead to scientific advancement or successful therapeutic methods.

At present the most efficient method of treating malignant disease is the early and radical removal of all suspicious tissue by surgical operation. Anything that delays such early and radical removal of the focus of the disease is detrimental to the best interests of the patient. Prompt surgical operation is therefore the most scientific conservatism. The diffusion, in the lay and medical press, of the opinion that all forms of malignant disease can be cured by radiation treatment, before this has been proved, will lead to fatal delay in many patients who might have been saved, or at least had their lives prolonged, by early radical operation. It should be clearly understood that this method is still in an experimental stage; that, so far as we know at present, the beneficial results are confined to superficial lesions, and that sufficient time has not yet elapsed to prove that

no recurrence or metastases will take place in benefited cases. Dr. Morton had stated that by the use of the x-ray in different ways we were enabled to reach different depths of disease in the body; but he had to confess that he was as yet skeptical on this point. He had never seen a burn appearing on the opposite side of the body or of a limb from that which had been subjected to irradiation. The application of the method, he thought, should be reserved for non-operable and recurrent lesions and primary superficial growths where the diagnosis is in doubt, or where the more benign character of the lesion makes it permissible to seek a more cosmetic result than would be possible by surgical operation.

DR. L. A. WEIGEL of Rochester, N. Y., said that in time the actual limitations of radiotherapy would be clearly defined. At present we do not know the safe limit for using the x-ray; we cannot as yet determine just what the reaction is going to be. In two cases in which he had employed it on the breast, tanning of the face had occurred, and in another case there had been loss of hair and eyebrows. There is a vast difference in reaction in different individuals. Scar tissue reacts badly, and anemia and other conditions of malnutrition increase the liability to unfavorable reaction. According to Codman, the known limits of danger are wide. It would be better, he states, to adopt a standard of intensity of exposure which, so far as inches and minutes are concerned, would represent the unit of dose. The other factor, the quality of tube, could then (as nearly as possible) be arranged to agree. This would leave the idiosyncrasy more directly to be measured by the number of times it would be necessary to repeat the exposure.

DR. C. W. ALLEN spoke of the difficulties and dangers attending the use of radiotherapy, and said that it required the most careful attention to detail. He also confirmed the statements made as to the remarkable efficacy of the method in the alleviation of pain, as illustrated in his own cases, and said that if it never accomplished anything more than to afford relief from suffering and to inspire patients with new hope, it had already proved a great boon.

DR. CARL BECK thought that we should not exact too much in the way of definite knowledge at the present time. No one had ever identified the bacillus of syphilis, and yet we were able to treat that disease with the greatest success. With regard to the x-ray, he did not see how to explain the difference of the reaction in different individuals except on the hypothesis of idiosyncrasy. While it might be stated with truth that the x-ray is the *only* treatment for lupus today, he was still somewhat doubtful as to its curative effect in cancer. In some of the cases in which he had employed it, however, the results had proved more beneficial than he had anticipated. But in his opinion, it would be extremely unwise to substitute the x-ray for the scalpel. It should not be resorted to as long as the knife could be used; and it was a fact that at the present day the prog-

nosis in malignant disease is greatly improved for the reason that patients consult the surgeon earlier than was formerly the case. After the knife had been extensively used, however, it was well to make application of the x-ray, which might be of service in destroying any cancer cells that might be left.

DR. H. B. DELATOUR related a case of tumor of the transverse colon in which radiation treatment had proved successful. It had been found impossible to remove the growth by operation, and an anastomosis had been made below it. After eight months the patient was now apparently in perfect health. In all his x-ray cases the relief of pain had been marked and lasting. All his patients had been given a new lease of life for a time, at least, and all had become inspired with a feeling of hopefulness which of itself had had a most beneficial effect.

DR. GEORGE G. HOPKINS spoke of the prompt effect of radiation treatment in permanently removing fetor in cancerous disease, and related a case in illustration. Having described some cases of chronic eczema cured by the x-ray, he said it would be very desirable if we could arrive at some definite conclusions in the matter of technique, such as the time of exposure, distance, tubes, frequency of *séances*, etc. There could be no question, he thought, that we had in this a therapeutic agent of marvelous power. As to the use of electricity, independently of the x-ray, the late Dr. George M. Beard had made trial of this in almost every variety of external and internal disease, but as a rule the results were not to be compared with those obtained with radiotherapy. At one time the electrical treatment of tumors by the insertion of needles had had a considerable vogue. In many instances its effect in reducing the growths was extraordinary, but it was found that the method was attended with such great danger that it had to be abandoned.

DR. A. B. JOHNSON said that all were agreed that the x-ray, or whatever the agent employed under that name, was capable of producing certain definite effects. While a number of cases were undoubtedly cured by it, he did not believe that at the present time we were justified in resorting to it, in preference to surgery, in any condition. He had already seen the ill effects which the reports of its success had produced in the minds of many individuals. In a number of instances patients with properly operable carcinomata had come to him insisting that they be treated by means of the x-ray, and they had been turned away because they would not consent to a surgical operation. Some of these he had seen later, when the disease had advanced and the case was entirely unfit for operation. At the same time, he was willing to admit that the time might come when this condition of affairs would no longer exist. The cases of cancer in which he had employed the x-ray were inoperable ones; and on this account his results were perhaps less favorable than those of some others. The statement had been made that while growths

were under this treatment secondary growths do not take place. He had had one case, however, in which the nodules at the original seat of disease had disappeared, but during the last three months, at least fifty nodules had made their appearance in other parts. In a case of carcinoma of the jaw also, the growth was apparently very much improved, yet the patient had been attacked by a secondary carcinoma of the neck. He had not thus far succeeded in curing a patient in a single instance, but he was happy to say that some of his cases were at the present time in excellent condition.

DR. MORTON, in closing the discussion, said that he was not a little surprised to find that Dr. Leonard had receded from the accepted position that it was the x-ray which is the agent producing the effects noted, and attributed these effects to the action of electricity. Personally he had always recognized that the x-ray is itself an effect of high potential electricity. An aluminum screen was usually employed for shutting off electric pulsations; yet the effects in question were developed just the same. It was impossible, he thought, to sweep away the mass of facts which had now accumulated with a few cases in which it was claimed that similar results had been obtained without the use of radiation. In the paper he had laid special stress on the point that the effects of the x-ray are not confined to the surface, but are also energetic in the interior of the body. As to the tanning of the skin, the process, he believed, was exactly identical with sunburn. The question of tubes was a very interesting one. Whether hard, soft or medium tubes were employed, there was a certain critical moment when the tube was at its best. As at present produced, the x-ray was certainly a very fickle agency; but the whole technique was being rapidly standardized. Dr. Beck had spoken as a surgeon. It seemed to him (Dr. Morton) logical that if it were advisable to employ the x-ray after an operation, it might be resorted to before, as well. We all know that this question of x-ray versus operation was going to give rise to a great deal of discussion, and he hoped that the matter would be dealt with in all fairness and with due regard to existing facts.

### Recent Literature.

*Memoirs and Letters of Sir James Paget.* Edited by STEPHEN PAGET, one of his sons, with portraits and other illustrations. Pp. 438. London, New York and Bombay: Longmans, Green & Co. 1901.

Memoirs of distinguished men are rarely dull reading, but this volume, comprising an autobiographical sketch and many letters of Sir James Paget, commands a place of very special interest. Not only is this interest awakened by the charming personality of the man which it commemo-



rates, but also by the fact that the period covered by his life was contemporaneous with the development of modern medicine in England.

The first part of the book is taken up with a simple, straightforward narrative from his own pen of the difficulties of early practice, the stress of a scientific life and the ultimate complete success of the methods adopted to develop the traits and habits of thought of a broad-minded physician. We most cordially recommend these entertaining chapters to all young physicians in search of a career. Sounder advice could not be given. Interpolated between the chapters of this memoir are commentaries in smaller type which do much to fill the gaps and elucidate various matters which are merely touched upon or omitted altogether from the main text. The repetition which this method involves and the constant interruption of the chief narrative are objections which the somewhat fragmentary character of the autobiographical sketch in a measure necessitates.

The second part of the book, something over two hundred pages, is taken up chiefly with letters and the running comment required to make them intelligible. They are of much interest, showing as they do Paget's wide interests and acquaintance with the leading men of science during the many years of his active life.

Taken as a whole the book offers a well-delineated picture of the life of a man remarkable in his personal relations, in his capacity as the best type of a medical practitioner and as a liberal contributor to the progress of his chosen profession. He was eminently what a few years ago would have been called a "God fearing man." The printing is admirable, with a liberal use of types of varying size; the binding and illustrations are examples of the acknowledged excellent work of the publishers.

*Lectures on Chemical Pathology in its Relation to Practical Medicine.* Delivered at the University and Bellevue Medical School, New York City. By C. A. HERTER, M.D., Professor of Pathological Chemistry, University and Bellevue Medical School, New York; Visiting Physician to the City Hospital; Late Consulting Physician to the Babies' Hospital; Consulting Pathological Chemist to the Craig Colony for Epileptics, etc. Philadelphia: Lea Brothers & Co. 1902.

This book fills a need, and consequently is sure of a hearty welcome by the medical profession. The writer is amply competent from his own large experience in original work along chemical lines to deal with the problems which the subject presents, but he is especially well fitted to estimate at its proper worth the work of others, because of the broad horizon which his varied activities in medicine have given him. Dr. Herter has done for chemical pathology what Foster has done for physiology.

The thirteen lectures are most attractively written. There is no mere recital of laboratory

facts, but a nice balance between experiments, clinical observation and theory. As a result the reader feels that he is in a position to draw his own conclusions. The mind is not worn out with the recital of dry data, but is constantly stimulated to original thought. It is just the book which the professor of clinical medicine requires, which all students of medicine, old or young, want.

In the Chemical Defences of the Organism against Disease the author describes the bactericidal rôle played by the gastric juice, the urine and vaginal secretion. The modern views of the bactericidal and globulicidal action of blood and serum are presented in a most lucid way. Acid intoxication is considered. Three lectures are devoted to the Chief Food Stuffs and their Fate in the Body in Health and Disease. They contain, in addition to what is usually written on such a subject, the latest chemical work. The proteid molecule and its cleavage products are thoroughly described. The salts of the food receive the most complete and readable consideration with which we are familiar in any textbook, and the reader is put in a good position to follow the original work, which is coming out so fast.

One chapter is devoted to the much discussed question, the organic acids of the food, tea and coffee.

Knowledge concerning fermentation and putrefaction in the digestive tract is still in such an embryonic state that it takes courage to approach the problem. But when one finishes Dr. Herter's two chapters upon these questions he feels much more in a position to follow the present studies along these lines and to better appreciate the clinical disturbances which arise in his patients. The lecturer's broad grasp of the subject is communicated to the reader.

The Chemical Pathology of Gastric and Intestinal Digestion occupy two chapters; two more are devoted to Hepatic Disease; another is to Diabetes, about which the writer is so well qualified to write, and the volume closes with the subjects of starvation, under-nutrition and obesity.

It is an art to write such a book. We hope the author will realize his "talent" and give us frequent future editions, for perhaps in no other way can he so advance medicine.

*Treatise on Surgery by American Authors.* For Students and Practitioners of Surgery and Medicine. By ROSWELL PARK, M.D., Professor of Surgery in the University of Buffalo, N. Y.; Surgeon to the Buffalo General Hospital, etc., etc. New third edition. Philadelphia and New York: Lea Brothers & Co. 1901.

This well-known work, which has in five years reached its third edition, now appears in a new garb, namely, as one royal octavo volume of 1,350 pages, with 692 engravings and 64 full-page plates in colors and monochrome, and weighing seven and three-fourths pounds.

Americans are regarded as loving a "comprehensive" book, and disliking to spend time in re-

ferring from one volume to another; but it is questionable if after a hard day's work a seven and three-fourths pound volume would be an attractive one.

Aside from this criticism, we agree with the statements of the editor and publisher describing the volume. Apparently, much effort has been made to thoroughly revise the work and to make it a book representing the most advanced ideas and methods in the surgery of today.

Its general arrangement appears unchanged. Part I is entitled Surgical Pathology; Part II, Surgical Disease; Part III, Surgical Principles, Methods and Minor Procedures; Part IV, Injury and Repair; Part V, Surgical Affections of the Tissues and Tissue Systems; Part VI, Special or Regional Surgery.

The subjects of bacteriology, auto-intoxication, surgical sequelæ of acute non-surgical diseases, surgical pathology of the blood and tumors have received special attention.

In the construction of the work Dr. Park has aimed to make each topic a complete and condensed account of the theory and practice representing surgery in its present advanced position; but he has also wisely striven not to neglect the vast experience and knowledge of the past. Much care has also been taken to provide fitting illustrations.

The matter of size and weight aside, the book has unquestionably been brought to a higher standard of excellence by its revision. The subjects are in many cases so treated as to not only present the specific topic concisely and comprehensively, but also so as to suggest to the reader, desirous of studying it more in detail, lines of investigation relating to pathology, etiology, treatment, etc., by stating present theories, or noting briefly the views of other investigators. In this the book is of value to the practitioner as well as the student.

Space does not permit a detailed review of this massive volume, but one can justly say that the impression received as each chapter is examined is that the work as a rule has been well done. This impression also deepens as one tests it in actual clinical work. One also notes that its editor, Dr. Park, has personally contributed a far larger part (more than one-fifth of the total number of pages) of the text than is usual in this class of book. It gives to the volume a more personal character and is less encyclopedic. Dr. Park is to be congratulated on the results of his efforts and the volume deserves careful study by those interested in this department of medicine.

*The Roentgen Rays in Medical Work.* Third edition. By DAVID WALSH, M.D. New York: William Wood & Co. 1902.

This book contains 316 pages, a large proportion of which are devoted to the surgical uses of the x-rays, namely, the localization of foreign bodies, a subject which is well presented and illustrated, the recognition of fractures and dislocations, of congenital and other bony deform-

ities, and of diseases of the bones. The section relating to the uses of the x-rays in medical diagnosis comprises only twenty pages and is inadequate. The remainder of the body of the book contains brief sections on the uses of the x-rays in dental surgery, obstetrics and gynecology, legal medicine, anatomy, physiology, veterinary surgery, and therapeutics; a few pages on x-ray burns; and seventy-three pages by Dr. Lewis Jones on apparatus, but the newest forms of these are not described. The reader turns hopefully to the appendices for the most recent information and finds that the first appendix consists of a translation of Röntgen's preliminary communication to the Würzburg Physico-Medical Society; but that the second contains more recent matter principally on the uses of the x-rays in surgery but also an excellent contribution of ten pages by Dr. A. W. Crane of Michigan on their use in the diagnosis of diseases of the thorax and abdomen. This appendix also includes a section on the therapeutic uses of the x-rays, but it consists of six pages only, four of which are given to their use in depilation. As the author is connected with a skin hospital it is difficult to understand why this important side of the subject has been so neglected. A number of the radiographs are poor, and some bear the evidence of having been retouched. While the writer reports briefly and very well much of the work that has been done in this department of medicine, he fails to do justice to the subject.

*A Textbook of Bacteriology.* By GEORGE M. STERNBERG, M.D., LL.D., Surgeon-General, U. S. Army. Ex-president of the American Medical Association and of the American Public Health Association; Honorary Member of the Epidemiological Society of London, of the Royal Academy of Medicine of Rome, of the Academy of Medicine of Rio de Janeiro, of the Société Française D'Hygiène, etc., etc. Second Revised Edition. New York: William Wood & Co. 1901.

This is a large, attractive-looking volume of about 700 pages and is well illustrated. While it is denominated a second edition, it is practically a third and abridged edition of the writer's well-known "Manual of Bacteriology," which was such a useful and welcome book to bacteriologists about ten years ago.

To the present edition considerable additions have been made, including a section on protective inoculations in infectious diseases and one on the bacteria of plant diseases. The book as it appears today is largely made up of sections of the manual of 1892 combined with a certain amount of new matter, so as to form a book of smaller size than the manual and one designed for the use of students of medicine.

Considered as a textbook for medical students, it may be said to be worthy of some commendation, but in the reviewer's opinion it is not so useful as other books published for the same purpose. Advanced students of bacteriology will find little

that is helpful in the book. It is deficient and behind the times in bacteriological technique, a subject of vital importance to the student. It still contains a good deal of the text of the first edition that is now antiquated or could be eliminated with advantage as being of no importance to medical students. On the other hand, it needs some additions; for example the enlarging and rewriting of the section on the diplococcus intracellularis meningitidis, which is now given less than a page, and the insertion of a paragraph, at least, on the important subject of actinomycosis.

The book is larger and more expensively made than its contents and purpose require; it costs more, therefore, than do other and more useful books of the same kind.

*Health, Speech and Song. A Practical Guide to Voice Production.* By JUTTA BELL-RANSKE. London: Swan Sonnenschein & Co.; New York: E. P. Dutton & Co. 1902.

This is a small book of about 150 pages illustrated with pen and ink copies of a few familiar anatomical cuts. The book is intended for teachers and students of singing, and was perhaps not meant to fall into the hands of physicians. If it should happen to do so it will probably arouse various sentiments in their minds. They will recognize the sketches mentioned above, but the text will be hard to follow. There are several pages devoted in whole or in part to anatomy and physiology, in spite of the assertion that "all that it is necessary for teachers and students of song to realize is that the arytenoidei control the opening or closing of the vibratory glottis by regulating the cords, and furthermore stimulate the muscles of the larynx which influence the resonator." Great stress is laid on the fact that the "vocal organ is an instrument" and the mechanism of the instrument is gone into in detail; for example: "The respiratory glottis measures out a certain quantity of air, controlled by the resistance of the tensioned cords, which are regulated by the arytenoidei, and hence are given the name of the guarders of the portals of song. The action of the controllers stimulates the contraction of the ring-shield muscles, which furthermore tension the vocal cords, an action which stimulates all the muscles of the upper or vocal glottis and influences the whole of the resonator by the muscles connected from the upper horns of the shield to the soft palate. This connection shows us the wonderfully consistent construction of the most perfect of all organs; the regulations working gradually upwards from the root, stimulating each other through one governing muscle when the various elements are in working order." Breathing, sounds and vibrations, "psychology" and kindred subjects are discussed equally graphically. The author very properly condemns wrong breathing and faulty methods of vocal instruction and all those who teach by them. The usefulness of the book would be increased if the proper methods of singing and breathing were described.

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SUTURE OF THE SPINAL CORD.

A DOCTRINE firmly fixed in neuropathology is that neurones in the central nervous system do not regenerate after injury, whereas peripheral neurones show a marked tendency to recover under similar conditions. No satisfactory explanation of this unique fact, which both clinical and experimental research have in general substantiated, has been forthcoming. There is some small evidence to show that in the lower animals a very slight regeneration of central fibres may occur after injury to the cord. In man such evidence is exceedingly scanty, so that for all practical purposes an injury to the central nervous system has been regarded as wholly irremediable. So deeply rooted is this opinion that the burden of proof lies heavily upon anyone who asserts a contrary proposition.

This has, however, recently been done by two Philadelphia surgeons, Drs. F. T. Stewart and R. H. Harte, who report a case in the *Philadelphia Medical Journal* for June 7, under the title "A Case of Severed Spinal Cord in which Myelorrhaphy was followed by Partial Return of Function." In justice to the writers and to the general importance of the subject such a case requires the most critical scrutiny before a general acceptance of the deductions may be expected. The patient was a young woman who was shot by a thirty-two calibre bullet at the level of the seventh thoracic spine. It is stated that "there was immediate and complete abolition of motion and sensation below a line transecting the lower part of the tenth dorsal spine, etc." The superficial and deep reflexes could not be elicited. No mention is made of the condition of the sphincters, and unfortunately no statement as to the means used of testing sensation. In view of the very great importance of this preliminary exam-

ination, it is to be regretted that there is not more evidence of care in its performance. From a neurological point of view it must be regarded as inadequate to establish the proposition that the cord was completely severed.

The operation was done three hours after the accident, which perhaps did not allow time for so thorough an examination as the outcome rendered desirable. After removing the necessary spines and laminæ the following appearances presented themselves:

The rent in the membranes, through which could be seen the leaden bullet and a number of small fragments of bone lying between the ends of the severed spinal cord, was exposed. After removing the bullet, the fragments of bone and the lacerated nervous tissue, the distance between the segments of the cord was three-fourths of an inch; this statement was verified by the assistants, Drs. Mitchell and Van Meter, by the etherizer, Dr. Fraley, and by Dr. Newlin, who was watching the operation. The wound was flushed with salt solution and the ends of the cord approximated with three chromicized catgut sutures passed by means of a small staphylorrhaphy needle, one suture being passed anteroposteriorly through the entire thickness of the cord and the other two being passed transversely. This part of the operation was attended with unusual difficulties because of the narrow space in which the suturing was conducted, because of the consistency of the cord, and because of the wide interval between the fragments, the catgut frequently tearing out before the ends were finally brought together. The dura mater could not be approximated.

Of these observations we have nothing to say, but in view of what immediately follows a certain skepticism regarding their accuracy appears justified:

**Fifth day.**—Complained of pain in the right knee, of thrills traveling up and down the extremities, and of cramps in the legs. Can feel a squeeze of the calf as a pulling sensation in the back.

Are these statements compatible? Is it conceivable that five days after approximating and suturing a spinal cord over a distance of three-quarters of an inch regeneration could have taken place, sufficient to give rise to distinct sensory reactions in the legs? Whatever slight evidence there may be to show that the cord regenerates at all after injury, there is certainly none at hand to demonstrate that cut nerve fibres could transmit impulses at the end of five days. The observations made at the time of operation and those immediately after cannot be reconciled. Either the cord was not completely severed or else the sensory phenomena on the fifth day were wrongly interpreted. On the seventh day the somewhat curious statement is made that "pin prick of the soles of the feet is felt in the midback," and there was also on this day a feeble contraction of the leg muscles. From this time on there was slow but steady improvement, both in sensation and motion, and also in the condition of the

sphincters, so that at the end of sixteen months the patient was able to stand, with some assistance, and in great measure had recovered her sensation.

It is maintained by the writers that inasmuch as the cord was seen at operation to be entirely severed, therefore the partial recovery which took place must have been due to the regeneration of spinal axones. If the premise is correct the conclusion is certainly justified, but we are forced to doubt the accuracy of the premise. The case proves too much. To draw together by sutures passed through the cord the two ends, separated by three-quarters of an inch, and establish conductivity on the fifth day, is too subversive of physiological and pathological knowledge to permit of unreserved acceptance. The case is of great interest as a contribution to spinal surgery, but it must be received with much caution by all physicians who aim at scientific accuracy.

#### THE FLY IN THE APOTHECARY'S OINTMENT.

THE measure to provide for the production of vaccine material under the direction of the State Board of Health, which was the subject of a petition to the legislature from the chairman of the Board of Health of Boston, was introduced early in the session of the legislature, but was unfavorably reported upon by the Committee on Public Health.

While the matter was under discussion, certain developments relative to seriously objectionable methods of production which were disclosed relative to a vaccine establishment in Massachusetts led to the introduction of an order by Mr. Adams of Melrose, April 25, 1902, for an investigation by the State Board of Health as to a plan of production and distribution of vaccine for "free use in the Commonwealth." A resolve was finally introduced in the House May 12 for such a report, by the State Board of Health, together with a further report as to the condition and purity of vaccine in use during the past winter and upon the "condition and practices employed in vaccine producing institutions in this state."

After dragging slowly through the legislature, this resolve was finally enacted June 10, and in reply the State Board of Health very promptly reported upon the same subject June 12, outlining a plan and the necessary appropriation for carrying it out. This report of the board was brief, definite and to the point, and contained sufficient information to enable a committee to act promptly upon so important a question.

Smallpox is a disease which requires prompt and decisive action in consequence of its liability

to spread rapidly, and there was no reason for further delay in the matter. Smallpox has prevailed in the city to an extent not experienced since 1872. It is still prevailing and is liable to increase during the coming fall and winter, yet in the face of these facts the Committee on Public Health, on June 23, reported the following resolve:

*"Resolved, That the State Board of Agriculture is hereby authorized and directed to investigate as to the feasibility and probable cost of producing vaccine lymph at the Massachusetts Agricultural College for free distribution within the Commonwealth, and to report the result of such investigation, together with such recommendations as the board may consider advisable, to the general court on or before the fifteenth day of January in the year nineteen hundred and three."*

By the terms of this resolve the question of free vaccine distribution under state authority is needlessly delayed another year, and the subject, after having been once reported upon by the State Board of Health, is now entrusted to the Board of Agriculture.

The submission of this question of a purely medical nature, involving matters of a bacteriological and pathological character, to an agricultural board and also of conducting the work at a long distance from the densely settled population of the state, while all the best facilities for such work already exist in the metropolitan district, is open to question.

It should be remembered that last winter, when the question of state production of vaccine material was first introduced, the Druggists' Association of Massachusetts appeared with able counsel to defeat the movement. How far this legislative committee has succeeded in aiding this association in its charitable endeavors remains to be seen.

#### THE CONDUCT OF MEDICAL MEETINGS.

EACH succeeding year sees an increasing complication in our national and state medical society meetings. The membership of these various societies is continually increasing, and with this increase there is a natural tendency that more and more papers should be presented at the stated meetings. This means that an extra burden is thrown upon the committee of arrangements, and new problems are continually offering themselves for solution. It is easy to complain of the poor management of such society meetings; it is a very difficult matter, however, to suggest reasonable methods of improvement.

In this connection we note with some interest that at the recent very successful meeting of the

American Surgical Association, held at Albany, it was decreed that only eight minutes should be allowed for the reading of papers. The result of this arrangement was that thirty papers were presented and considerably more than a hundred discussions made possible. At first sight eight minutes would seem to be a short time in which to present even the barest results of any medical research. This is, however, not the fact. It is unquestionably possible to condense into this time the salient features either of a clinical or a scientific report, leaving out naturally all the extraneous and usually unessential details which are so apt to creep into the ordinary medical contribution. This association furthermore provided galley proofs of the various papers presented, which naturally made possible a very much more intelligent treatment of the subjects under discussion.

How far this plan adopted by the Surgical Association may be made generally applicable it is difficult to say. Experience has, however, certainly shown, as in the case of the meetings of the American Association of Pathologists and Bacteriologists, that long programs may be finished if only the chairman is willing to enforce the time limit upon the various readers. This is not always a pleasant thing to do, but unquestionably it leads, on the whole, to the most satisfactory results in spite of certain evident drawbacks. Certain well-known societies, on the other hand, have a habit of printing long and elaborate programs, and then enforcing in so lax a fashion the limit of time that not more than one-half or two-thirds of the papers are read at the meetings. This is a manifest injustice to those readers who come toward the end of the program. It not infrequently happens that they have prepared their papers with care, have perhaps brought to the meeting elaborate drawings or specimens only to find that their efforts are entirely ignored. Such treatment at the hands of the managers of society meetings evidently must discourage many who would otherwise willingly be contributors.

If extensive discussions are desired, and it must be admitted that the enforcement of the time limit frequently interferes with this part of the program, general subjects should be taken up rather than a large number of more or less independent topics. Such a method of encouraging the discussion of important medical questions has been tried with success at the Massachusetts Medical Society meetings and at various other of the national organizations. No doubt much is learned each year, and we need have little concern that, in spite of the enormous growth of certain of our medical societies, of which the American Medical Association stands as a typical

example, we may look for a more and more systematic conduct of the meetings from which much may be expected, not only from a social, but also from a literary point of view. This result requires not only the devoted work of those having the meetings in charge, but also the earnest co-operation of every contributor to those meetings. Each man should bear in mind the fact that others as well as himself have contributions to offer, and should make every endeavor, therefore, to condense into the shortest possible space the essence of the remarks which he thinks worth contributing to the society.

#### MEDICAL NOTES.

**CHANGES IN THE MEDICAL FACULTY OF THE UNIVERSITY OF MARYLAND.**—Dr. L. McLane Tiffany having resigned the chair of surgery in the University of Maryland faculty of physic, Dr. Randolph Winslow has been elected professor of surgery. Dr. John Holmes Smith has been elected professor of anatomy, Dr. D. M. R. Culbreth professor of materia medica, Dr. Frank Martin and Dr. St. Clair Spruill clinical professors of surgery, and Dr. Joseph W. Holland demonstrator of anatomy.

**INVESTIGATION OF CANCER.**—Prof. von Leyden's commission, which in October, 1900, began an investigation of the spread of cancer, has just published a report, stating that 4,430 men and 7,714 women were under medical care in Germany, afflicted with that disease. This shows that the victims of cancer number 215 in each million of the population. Patients over seventy years of age were most numerous. Seventy per cent. of all cases suffered from cancer of the digestive organs.

**DIFFICULTY IN FILLING ARMY MEDICAL PLACES.**—It is reported that of one hundred and twenty-nine candidates for positions in the medical corps of the United States Army, only eighteen have been accepted, as a result of recent examinations. This argues either that the examinations are exceptionally severe or that inferior men present themselves for the positions.

**FRANK BILLINGS, M.D., PRESIDENT OF AMERICAN MEDICAL ASSOCIATION.**—Dr. Frank Billings of Chicago, Shattuck Lecturer this year at the annual meeting of The Massachusetts Medical Society, professor of medicine and dean of the faculty, Rush Medical College, has been elected president of the American Medical Association for the ensuing year.

**GIFT TO THE UNIVERSITY OF PENNSYLVANIA.**—It is reported that a gift of \$100,000 has recently

been made the University of Pennsylvania to be added to the building fund of the new medical laboratories. It is to be devoted to the department of pathology.

#### BOSTON AND NEW ENGLAND.

**ACUTE INFECTIOUS DISEASES IN BOSTON.**—For the week ending at noon, June 25, 1902, there were reported to the Board of Health of Boston the following cases of acute infectious diseases: Diphtheria 24, scarlatina 24, measles 57, typhoid fever 9, smallpox 4.

**CHILDREN'S HOSPITAL ON BUMKIN'S ISLAND.**—It is expected that the new Children's Hospital on Bumkin's Island, near Boston, will be formally opened in July. The hospital has been constructed by means of a gift from Mr. A. C. Burrage of Boston, at an estimated expense of about \$150,000. It is designed to accommodate about two hundred crippled children; every means has been taken to render the buildings convenient to this end.

**HARVARD MEDICAL ALUMNI ASSOCIATION.**—The annual meeting of the Harvard Medical Alumni Association was held June 24, at the Harvard Medical School, with the president, Dr. Clarence J. Blake, presiding. The routine business of the association was transacted and the following councillors elected for a term of four years: Dr. R. C. Cabot, Boston; Dr. N. B. Potter, New York, and Dr. G. A. Harlow, Milwaukee.

**HOSPITAL FOR MILFORD, MASS.**—Mr. Eben S. Draper has presented to the Milford (Mass.) Hospital Association land valued at \$3,000, upon which he proposes to erect a hospital at an estimated cost of \$50,000, in case Milford and neighboring towns will provide for the running expenses.

**SMALLPOX IN CAMBRIDGE, MASS.**—Upwards of forty cases of smallpox have recently occurred in Cambridgeport, traced in the first instance to a negro family. Every precaution is being taken to check the spread of the disease, although the hospital facilities for smallpox are being taxed to the utmost in caring for the patients.

**JANE TOPPAN INSANE.**—Jane Toppan, formerly a professional nurse, who has been held for several months on a charge of murder in having caused the deaths of a number of persons committed to her charge, has been adjudged insane, and sent to the Taunton Insane Hospital for life.

**APPOINTMENT OF DR. CHARLES S. LITTLE.**—Dr. Charles S. Little of the McLean Hospital, Waverley, has been appointed to the superintendency of the State School for Feeble-Minded Children at Concord, N. H.



**A CENTENARIAN.**—Nathaniel B. Cross, the oldest resident of Claremont, N. H., died June 22. He is said to have celebrated his 102d birthday anniversary Feb. 12 of this year.

#### NEW YORK.

**COMMITTEE FOR DISSEMINATING KNOWLEDGE REGARDING TUBERCULOSIS.**—With the object of disseminating knowledge in regard to tuberculosis and its prevention, and of aiding consumptives in the city, the Charity Organization Society has formed a committee of representative physicians and others. The physicians are Drs. E. G. Janeway, H. M. Biggs and J. D. Bryant and others; on the committee are the president of the Board of Health, the charities' commissioner, and Mr. Robert W. DeForest, the head of the Tenement-House Department. In a statement regarding its work it is announced that the first task of the committee will be an exhaustive investigation of some of the social aspects of tuberculosis. Little attempt, it is stated, has been made to establish the relation between infected living apartments and the victims of the disease, or to indicate the possibility of recovery or improvement, resulting from improved diet and improved light and air when patients are treated in their own homes, nor has there been any systematic effort to ascertain how far the infection can be prevented by instruction in the nature of the disease and in the precautions which should be taken to prevent its spread. In co-operation with the relief agencies, it is hoped that much additional information may be obtained concerning the desirability of making an entire change in the physical environment of those suffering from the disease, even when this involves considerable financial outlay. The financial burden imposed by the existence of 20,000 consumptives in New York City alone is very great.

**THE SOFT COAL NUISANCE.**—Ever since the commencement of the coal strike the city has been a great sufferer from the soft coal nuisance, and the Health Department has been blamed by many for not putting a stop to it. Commissioner Lederle states, however, that this would have been done long since but for the leniency of the criminal courts in paroling or releasing on insignificant bail such violators of the smoke ordinance as have been called to account. Fortunately, the elevated railroad company, the burning of soft coal by whose engines caused the greatest amount of discomfort and injury to health, has yielded to public pressure and returned to the exclusive use of anthracite.

**A FREE BATH FOR THE POOR.**—Mrs. Abram A. Anderson, who ten years ago gave \$350,000 to the Roosevelt Hospital, has ordered the construc-

tion of a free bath for the use of the poor of the East Side which, with the land, will cost \$100,000. When completed it will be presented to the Association for Improving the Condition of the Poor.

**APPROPRIATION FOR NEW BUILDINGS FOR THE HEALTH DEPARTMENT.**—At a meeting of the Board of Estimate, held June 6, \$475,000 was appropriated for a contagious hospital and other new buildings for the Health Department.

**BEQUESTS TO HOSPITALS.**—By the will of Mrs. Regine Bunzl, \$1,000 each is bequeathed to the Mount Sinai Hospital, the German Hospital, and the Montefiore Home and Hospital for Chronic Invalids.

### Obituary.

#### EDWARD NEWTON WHITTIER, M.D.

THE medical profession of Boston has been bereft of one of its choicest members by the death of Dr. Edward Newton Whittier. The end came suddenly on the 14th inst., by sclerosis and obstruction of the coronary artery; he was spared the severe attacks of angina which accompany this cardiac disability, and only one seizure, at the end of a long and fatiguing journey to minister to his injured son, gave distinct and unequivocal warning of the nature of the disease. He passed away as he would have chosen to be called, before the infirmities of age began to declare themselves or his mental powers had become impaired.

Dr. Whittier was born July 2, 1841, at Portland, Me. He entered Brown University in 1858, and before he graduated the initial events of the Civil War occurred and Whittier left his books and did not resume them until peace was restored between the North and the South in 1865. With a spirit and a purpose which were characteristic, he sought early opportunity to enter the service of the Union, and his first term was of three months with the First Rhode Island Volunteer Regiment. Immediately upon his return from this term of duty he joined the Fifth Maine Battery and was commissioned a second lieutenant and presently he became first lieutenant. At the battle of Gettysburg this battery, then under his command, won conspicuous distinction by resisting effectually a night attack by the enemy upon the Union troops stationed on Culp's Hill. For this service and for services equally gallant later, under General Sheridan, in the valley of the Shenandoah in 1864, Dr. Whittier received the special medal of honor conferred by Congress for "faithful, gallant and meritorious services"; a brevet rank of captain of volunteers was also given to him.

He resumed his course at Providence after his discharge from the army, and was much gratified when the college passed a retro-active order restoring him to his place in the class of 1862.

His medical education was obtained at the Harvard Medical School, and of all the teachers in the faculty at this time no one appealed to him so sincerely or so cordially as Dr. Calvin Ellis; their minds always worked in entire sympathy. In 1873 Dr. Whittier became a member of the visiting staff of the Massachusetts General Hospital, a position which he held many years and very acceptably. In 1877 he was appointed assistant in clinical medicine, and his teaching service in the Harvard Medical School continued until 1888, when he held the grade of assistant professor in clinical medicine. Numerous students of the school of his time can testify of the clearness, the thoroughness, the logical system which characterized his teaching and made each clinical exercise conducted by him an exercise

which fixed itself in the student's memory indelibly and usefully. Since resigning his appointment in 1888 he has devoted himself with great success to private practice, and it is fair to say that at no period of his life has he been more widely esteemed than at the time of his last sickness. He was the trusted counselor in case of illness. Those who knew him superficially complained sometimes that he was not serious in the presence of sickness, that he looked to the more frivolous things of life in the sickroom instead of the sedate and solemn aspects. But if Dr. Whittier was brought into the presence of a real crisis, a genuine danger, all this apparent indifference fell away and left the man of action. Here he was at his best—alert, considerate, trustworthy. He would have been slow to claim for himself a mind trained especially in the laboratory; his training was in the sickroom, as the ripened fruit of wide experience. He was not a ready writer or a fluent speaker, but a keen and accurate thinker, and his best powers were always held in readiness for the service of his fellow-men. He was generous, self-sacrificing, magnanimous, a lover of nature, a true knight, without fear and without reproach.

### Correspondence.

#### DRAWBACKS DIFFICULT OF AMELIORATION AT THE ANNUAL MEETING OF THE MASSACHUSETTS MEDICAL SOCIETY: REPLIES.

Boston, June 23, 1902.

MR. EDITOR: The communication of "Growler" in the journal of June 19 vividly describes the annoyances connected with the recent meeting of The Massachusetts Medical Society. Doubtless many of your readers will agree with him that the remedies are simple. As one who has been somewhat conversant with matters relating to the meetings, I venture to make a reply.

Many of the things of which he complains have been in the past the subject of much thought on the part of those in charge of the arrangements for the annual meeting, but their remedies have not been found "simple."

It is to be hoped that before another year the management of the Medical Library will take steps to eliminate the squeaking of the seats in John Ware Hall. As to the "flamboyant headgear" of the sisters, I presume it is hardly possible to have an usher go about, as is done in the theatres, and request that the hats be removed.

Few physicians read their papers loudly and distinctly, and the acoustic properties of Paul Revere Hall in Mechanic Building are execrable. But that building has been the only one available in recent years which has sufficient accommodations for the exhibit and the annual dinner. We cannot well have these in one building and go to another for the literary exercises. A year ago, when Mechanic Building could not be obtained, papers were read in Chickering Hall and the dinner was with great difficulty served in Symphony Hall, but the exhibit had to be given up, to the disappointment expressed by many members, especially by those coming from a distance. The Committee of Arrangements for the next anniversary are already at work and if they can find a better place than Mechanic Building for the meeting they will endeavor to secure it.

In times past, and for several years, the doors were closed during the delivery of the Shattuck Lecture and the Annual Discourse, but so much dissatisfaction and disappointment were expressed by those who came a little late that the plan was abandoned. A friend remarks: "Shutting doors is absurd. If a man wants to come and hear what he can, getting away from his patients, he has a right to do so—ought to be encouraged to do so."

The reference to the "dislocation of the program" is somewhat obscure. The papers were read in the order printed thereon. The Annual Discourse was begun at 12.30. That was necessitated by the opening of the session at 9.30 instead of at 9, as formerly. When called at 9 it was difficult to secure a quorum of ten members, and frequently the required number could not be secured much before 9.30. The Rules and Orders of the society require that the orator be called upon at 12, noon, and it was so printed in the program. The rule was suspended this year by vote of the meeting, and notice was given that a motion will be made at the next annual meeting that the rule be annulled.

Trusting that our friend "Growler" will see from the above that those who are responsible for the arrangements for the meetings of the society have not been wholly unmindful of the annoyances to which he refers, and have tried as far as they have been able to remedy or to minimize them, I remain,

Yours very truly,

BARKER.

Boston, June 23, 1902.

MR. EDITOR: Dr. Growler's growls regarding the recent meeting of The Massachusetts Medical Society when "boiled down" seem to be about as follows: That the acoustics of Paul Revere Hall are bad; that John Ware Hall is noisy; and he might have added that, in spite of the recent improvements, there is still great difficulty in hearing; that some women, at even this late day, prefer to wear their hats in public meetings; that papers are too long and not to the point; and that the program was dislocated.

Regarding the last, I have been unable to find out that any variation from the printed program was made during the meeting. I think a courteous request from Growler to have the offending hat removed would have done away with the need of any complaint in print. As to having papers confined to the subject matter in hand, I assert that it is an impossibility. Offences will occur and occur after the most careful explanations, and be committed by the men one would least expect to offend; and Growler's own needless verbosity is a proof of my assertion. I know, however, that it will be said that at the meetings of a certain society no one ever exceeds the allotted time. True, the papers are kept within the time-limit, but too often that time is much too great for sustained interest from even a selected audience. It may be added as an additional reason why scientific papers often bore, is the fact that very few medical men are good speakers. The cultivation of the voice for the sick-room and in the laboratory is not conducive to public speaking. Happy, well-turned, pointed phrases are frequent, but they are only too often lost if the number of auditors exceeds half a hundred.

As to giving up Paul Revere Hall, I think I can hear the chairman of the Committee of Arrangements saying: "That's all very easy, but where shall we go and do better?" Before I knew where the annual meeting was to be held, I wrote to the gentlemen who were to take part that they must look to their delivery, as the hall in which the meeting would be held would be a very difficult one to speak effectively in. I knew I told the truth of whichever of three halls might be chosen.

That doors should be closed is, on a moment's reflection, an impossibility, as the meetings are for busy doctors who must often be late or not attend at all or have time to be present and take part in the discussion of some single subject or paper, as we may infer was Growler's own position when he complains of the dislocation of the program.

I am sure that the Committee of Arrangements, as well as that to Procure Scientific Papers, will welcome any really constructive suggestions which may be made, either privately or publicly.

Very respectfully,

ARTHUR K. STONE, M.D.

## METEOROLOGICAL RECORD

For the week ending June 14, in Boston, according to observations furnished by Sergeant J. W. Smith of the United States Signal Corps:

Date	Barometer	Thermometer.			Relative humidity.			Direction of wind.		Velocity of wind.		Weather		Rainfall in inches.	
	Daily mean.	Daily mean.	Maximum.	Minimum.	8.00 A.M.	8.00 P.M.	Daily mean.	8.00 A.M.	3.00 P.M.	8.00 A.M.	8.00 P.M.	8.00 A.M.	8.00 P.M.		
S....8	29.55	66	79	52	78	64	71	W	N	W	7	24	O.	C.	.07
M....9	29.93	69	71	49	58	46	52	W	S	W	15	11	C.	C.	
T....10	29.81	63	73	53	56	95	76	S	W	S	16	14	O.	C.	.03
W....11	29.93	58	63	52	55	68	62	S	E	S	16	16	F.	O.	.31
T....12	29.78	69	85	53	78	74	76	S	N	S	14	9	F.	R.	.1
F....13	29.90	58	66	51	97	86	82	S	E	E	6	1	R.	O.	
S....14	30.10	60	66	54	86	79	82	N	E	E	4	5	C.	C.	.41
Mean for week.	29.86		72	52			72								

\* O., cloudy; C., clear; F., fair; G., fog; H., hazy; S., smoky; R., rain; T., threatening; N., snow. † Indicates trace of rainfall. ‡ Mean for week.

## RECORD OF MORTALITY

FOR THE WEEK ENDING SATURDAY, JUNE 14, 1902.

CITIES.	Population Estimated, 1902.	Reported deaths in each.	Deaths under five years.	Percentage of deaths from					
				Infectious diseases.	Acute lung diseases.	Diphtheria and croup.	Scarlet fever.	Cerebro-spinal meningitis.	
New York.	3,665,352	1,235	420	27.77	9.71	3.88	1.62		.40
Chicago.	1,852,828	461	121	21.90	8.24	1.52	1.73		
Philadelphia.	1,349,624	412	121	23.78	8.74	4.12	1.45		.24
St. Louis.	603,717	—	—	—	—	—	—		
Baltimore.	525,330	159	53	28.93	7.54	1.25	.62		
Cleveland.	411,826	—	—	—	—	—	—		
Buffalo.	375,742	—	—	—	—	—	—		
Pittsburg.	341,401	132	47	34.08	9.09	1.51	2.27	1.51	
Cincinnati.	332,032	—	—	—	—	—	—		
Milwaukee.	304,975	—	—	—	—	—	—		
Washington.	289,537	—	—	—	—	—	—		
Providence.	185,870	46	11	10.87	—	—	—		
Boston.	588,736	187	47	24.59	12.83	2.13	1.60		
Worcester.	127,337	33	7	12.12	15.15	—	6.06		
Fall River.	111,872	27	11	25.92	14.81	—	—		
Lowell.	99,574	35	12	25.71	11.43	5.71	—	2.85	
Cambridge.	96,334	23	6	21.74	4.24	4.34	—		
Lynn.	71,144	13	3	7.70	7.70	7.70	—		
Lawrence.	67,275	20	13	25.00	20.00	—	—		
Springfield.	66,854	22	9	22.72	4.54	4.54	9.09		
Somerville.	65,882	13	2	15.40	15.40	—	—		
New Bedford.	65,574	17	4	5.88	5.88	—	—		
Holyoke.	48,065	7	1	—	—	—	—		
Brookton.	43,208	4	1	25.00	—	—	—	25.00	
Haverhill.	40,392	15	4	6.66	13.33	—	—		
Salem.	36,567	13	1	—	—	—	—		
Newton.	36,336	9	—	22.22	11.11	—	—		
Malden.	35,390	10	—	20.00	—	—	—		
Chelsea.	35,264	7	1	14.30	28.60	—	—		
Fitchburg.	33,848	4	1	25.00	—	—	—		
Taunton.	32,759	12	2	33.33	16.67	—	—	8.33	
Everett.	27,114	5	2	40.00	—	—	—	20.00	
North Adams.	26,583	6	1	16.67	16.67	—	—		
Gloucester.	26,121	4	1	—	—	—	—		
Quincy.	25,307	5	1	40.00	20.00	—	—		
Waltham.	24,612	1	—	—	—	—	—		
Pittsfield.	22,311	6	—	—	33.33	—	—		
Brookline.	21,679	—	—	—	—	—	—		
Chicopee.	20,390	4	2	25.00	25.00	—	—		
Medford.	20,014	1	—	—	—	—	—		
Newburyport.	14,478	5	—	—	20.00	—	—		
Melrose.	13,384	2	1	—	—	—	—		
Westfield.	13,038	3	—	—	33.33	—	—		
Attleboro.	12,846	—	—	—	—	—	—		
Adams.	12,813	—	—	—	—	—	—		
Milford.	12,516	—	—	—	—	—	—		
Frammingham.	12,109	—	—	—	—	—	—		
Peabody.	11,967	—	—	—	—	—	—		
Revere.	11,894	3	—	—	—	—	—		
Gardner.	11,544	—	—	—	—	—	—		
Weymouth.	11,337	3	1	—	33.33	—	—		
Southbridge.	10,838	1	—	—	—	—	—		
Watertown.	10,600	—	—	—	—	—	—		
Plymouth.	10,336	—	—	—	—	—	—		

Deaths reported 2,979; under five years of age, 909; principal infectious diseases (smallpox, measles, scarlet fever, cerebrospinal meningitis, diphtheria and croup, diarrheal diseases, whooping cough, erysipelas, fevers and consumption) 743, acute lung diseases 286, consumption 340, scarlet fever 47, erysipelas 8, typhoid fever 38, whooping cough 25, cerebrospinal meningitis 12, smallpox 27, measles 35, diarrheal diseases 119.

From whooping cough, New York 14, Chicago 2, Philadelphia 3, Baltimore 2, Boston 3, Lawrence 1. From measles, New York 12, Chicago 6, Philadelphia 7, Baltimore 3, Pittsburg 6, Boston 1. From erysipelas, New York 5, Philadelphia 1, Boston 2. From smallpox New York 13, Philadelphia 3, Boston 9, Lowell 2.

In the seventy-six great towns of England and Wales, with an estimated population of 14,862,909, for the week ending May 31, the death-rate was 16.5. Deaths reported 4,710; acute diseases of the respiratory organs (London) 261, whooping cough 108, diphtheria 54, measles 151, smallpox 59, scarlet fever 59.

The death-rate ranged from 6.5 in Wallasey to 25.9 in Barrow-in-Furness; London 16.6, West Ham 15.0, Croydon 10.2, Brighton 16.3, Portsmouth 10.9, Southampton 14.0, Bristol 12.6, Birmingham 17.9, Leicester 14.2, Nottingham 16.9, Birkenhead 18.1, Liverpool 22.9, Manchester 21.2, Salford 23.0, Bradford 16.8, Leeds 13.6, Sheffield 18.8, Hull 12.1, Newcastle-on-Tyne 17.1, Cardiff 13.6.

## CHANGES IN THE MEDICAL CORPS OF THE NAVY FOR THE WEEK ENDING JUNE 14, 1902.

J. W. ROSS, surgeon, retired. Detached from duty under the War Department at the Hospital Las Animas, Havana, Cuba, and ordered home.

E. M. BROWN, assistant surgeon. Ordered to the Naval Hospital, Mare Island, Cal., for duty.

FOR THE WEEK ENDING JUNE 21, 1902.

J. B. DENNIS, passed assistant surgeon. Detached from the Naval Academy and ordered to the "Hartford."

R. S. BLAKEMAN, passed assistant surgeon. Detached from the "Hartford" and ordered home, and granted three months sick leave.

L. W. BISHOP, assistant surgeon. Detached from Cavite Naval Station, and ordered to duty with Marine Brigade.

## CHANGES IN THE STAFF OF THE CARNEY HOSPITAL.

Dr. W. M. CONANT has resigned the position of surgeon. Dr. R. A. KINGMAN has resigned the position of gynecologist.

Dr. M. STORER has been appointed visiting gynecologist.

Dr. J. M. HASLINGS has been appointed gynecologist to out patients.

Dr. C. F. PAINTER has been appointed visiting orthopedic surgeon.

Drs. E. S. HATCH, R. B. OSGOOD and H. S. WARREN have been appointed assistant orthopedic surgeons.

## RECENT DEATHS.

JOHN CLIFFORD LINCOLN, M.D., M.M.S.S., died in Hyde Park June 18, 1902, aged forty-nine years.

Dr. WILLIAM H. BARTON, pathologist of the State Hospital for the Insane at Morris Plains, New Jersey, died at the Mount Sinai Hospital, New York, on June 20, from blood poisoning contracted while making an autopsy.

Dr. MAURICE B. EARLY of New York died on June 21, at the age of fifty-three. He was born in Richmond, Va., and was a nephew of Jubal Early, the Confederate general. He was graduated from the medical department of the University of the City of New York in 1869.

Dr. OBED L. LUSK of Long Island City, borough of Queens, New York, died on June 20. He was graduated from the Chicago Medical College in 1882. For four years Dr. Lusk was sanitary superintendent of the borough of Queens, and previous to that had been Health Officer of Queens County.

Dr. GEORGE F. CARRY of New York, a specialist in diseases of the eye and ear, died on June 17, at the age of sixty-six. He was born at Limerick, Ireland, and was graduated from the College of Physicians and Surgeons, New York, in 1874. At the time of his death he was assistant surgeon to the Manhattan Eye and Ear Hospital, and ophthalmic and aural surgeon to the New York Foundling Hospital.

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